US006481011B1

(12) **United States Patent**
Lemmons

(10) **Patent No.: US 6,481,011 B1**
(45) **Date of Patent: Nov. 12, 2002**

(54) **PROGRAM GUIDE SYSTEM WITH USER DESIGNATED COLOR CODING**

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **09/234,155**

(22) Filed: **Jan. 19, 1999**

Related U.S. Application Data

(60) Provisional application No. 60/089,485, filed on Jun. 16, 1998.

(51) **Int. Cl.**[7] **H04N 5/445**
(52) **U.S. Cl.** **725/47**; 725/44
(58) **Field of Search** 725/39–55; 348/906, 348/569

(56) **References Cited**

U.S. PATENT DOCUMENTS

5,589,892	A	12/1996	Knee et al.	348/731
5,630,119	A	5/1997	Aristides et al.	395/601
5,781,246	A	7/1998	Alten et al.	348/569
5,793,438	A	8/1998	Bedard	348/569
5,844,620	A *	12/1998	Coleman et al.	348/461
5,929,932	A *	7/1999	Otsuki et al.	348/569
5,973,682	A *	10/1999	Saib et al.	345/327
6,166,728	A *	12/2000	Haman et al.	345/327
6,177,931	B1 *	1/2001	Alexander et al.	345/327
6,278,493	B1 *	8/2001	Takahashi et al.	348/569

FOREIGN PATENT DOCUMENTS

WO	86/01962 A1	3/1986	H04N/7/16
WO	94/29840 A1	12/1994	G09G/1/14
WO	97/48230 A1	12/1997	H04N/7/00

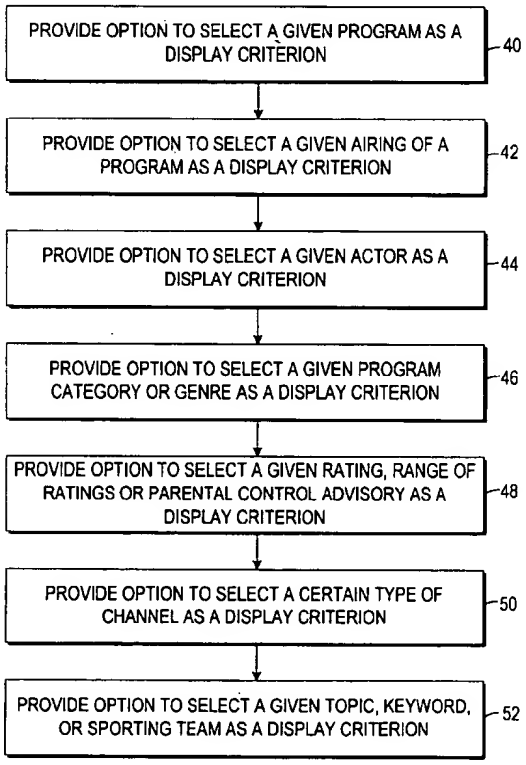
* cited by examiner

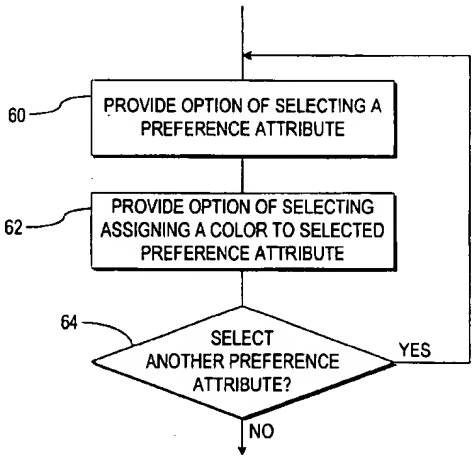
Primary Examiner—Victor R. Kostak

(57) **ABSTRACT**

An interactive television program guide system is provided in which a user may inform a program guide of the user's interests. Information on the user's interests may be stored in a preference profile. There may be more than one preference profile, each for a different user. Each preference profile contains a number of preference attributes (program titles, genres, viewing times, channels, actors, etc.). A color is associated with each preference attribute. The user is thus able to view the program listing and quickly identify programs of interest by the associated colors in the display.

74 Claims, 13 Drawing Sheets





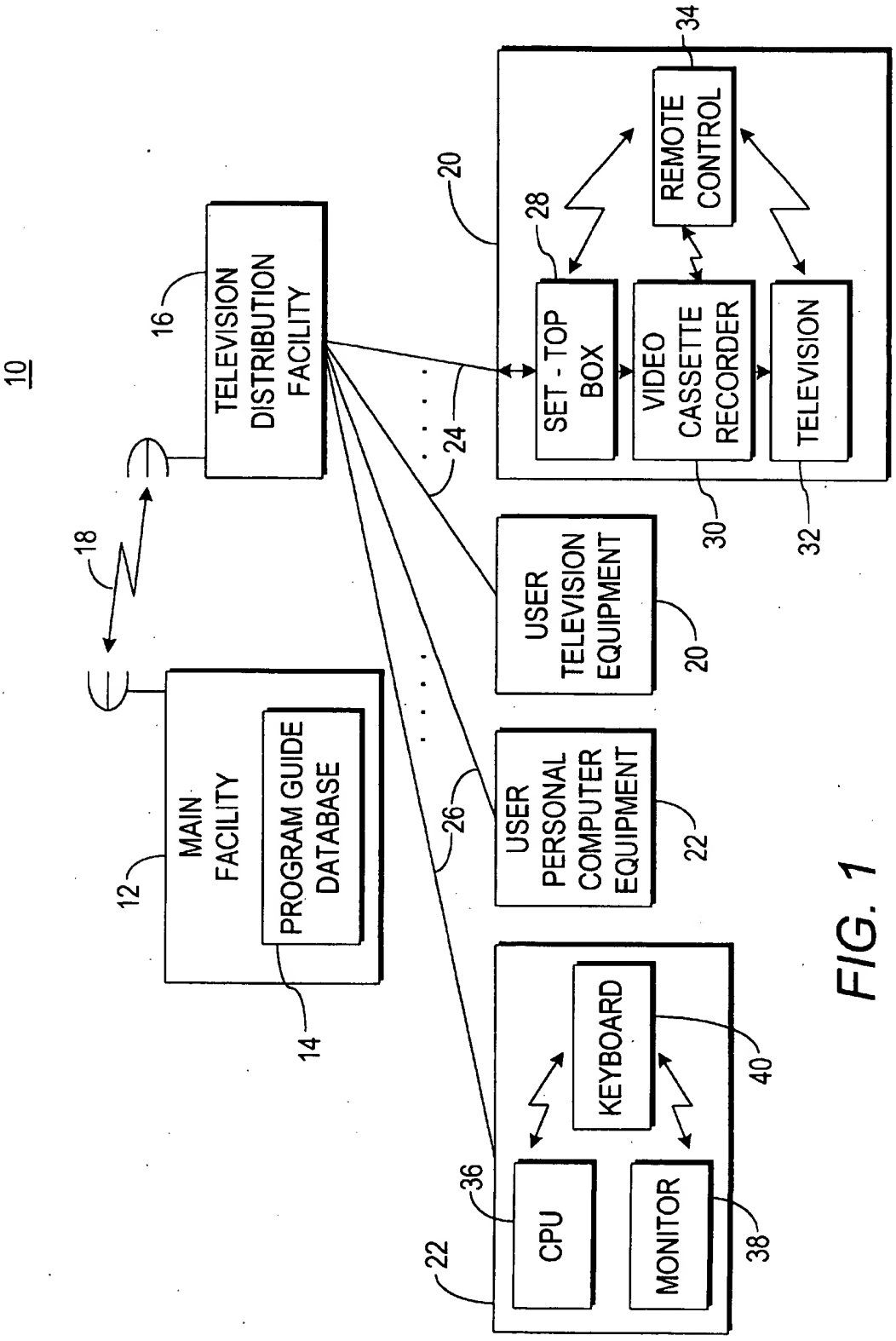

10
TELEVISION DISTRIBUTION FACILITY
16
18
MAIN FACILITY
12
PROGRAM GUIDE DATABASE
14
20
SET - TOP BOX
28
REMOTE CONTROL
34
VIDEO CASSETTE RECORDER
30
TELEVISION
32
24
USER TELEVISION EQUIPMENT
20
26
USER PERSONAL COMPUTER EQUIPMENT
22
KEYBOARD
40
CPU
36
MONITOR
38
22

FIG. 1

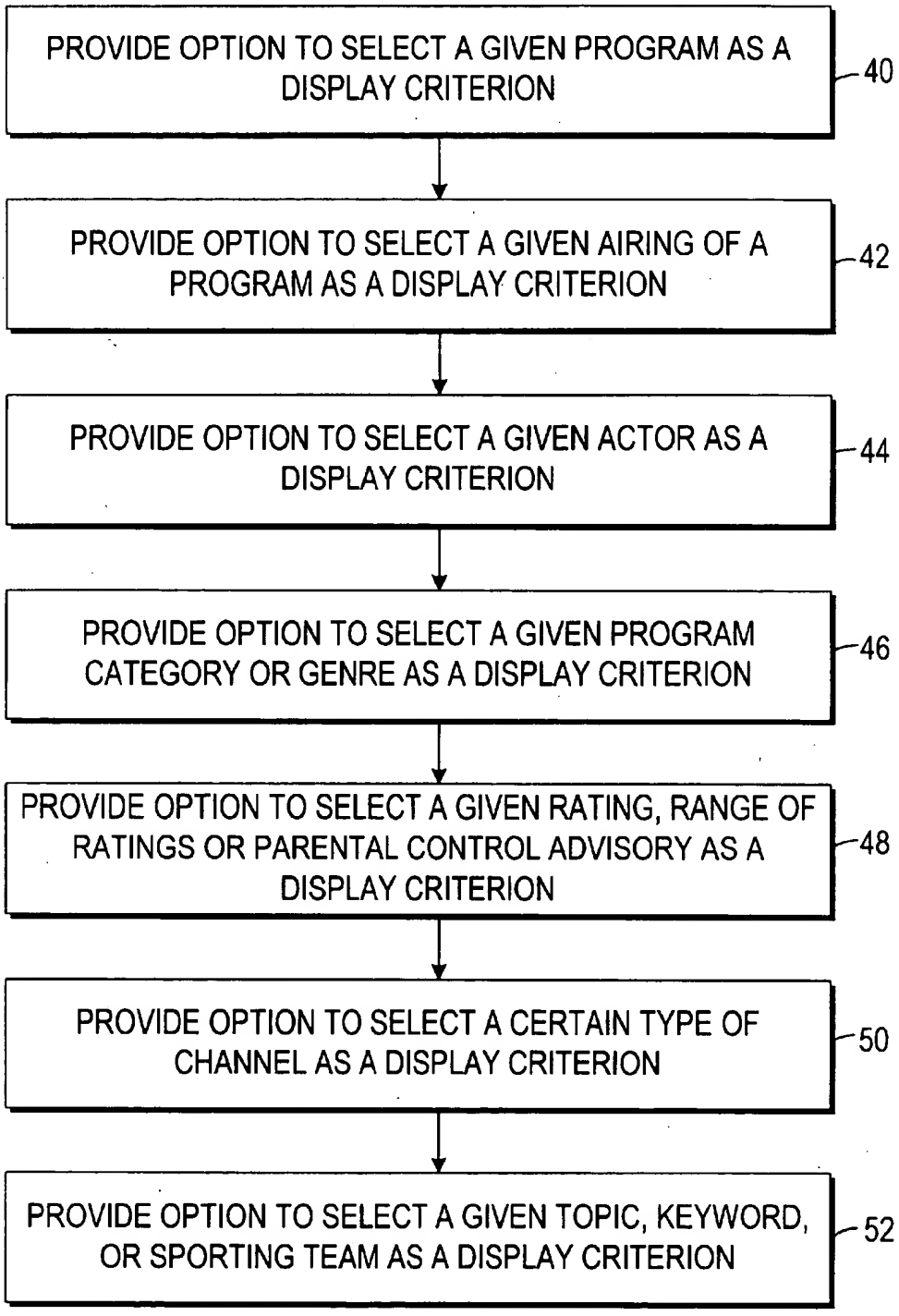

PROVIDE OPTION TO SELECT A GIVEN PROGRAM AS A DISPLAY CRITERION
40
PROVIDE OPTION TO SELECT A GIVEN AIRING OF A PROGRAM AS A DISPLAY CRITERION
42
PROVIDE OPTION TO SELECT A GIVEN ACTOR AS A DISPLAY CRITERION
44
PROVIDE OPTION TO SELECT A GIVEN PROGRAM CATEGORY OR GENRE AS A DISPLAY CRITERION
46
PROVIDE OPTION TO SELECT A GIVEN RATING, RANGE OF RATINGS OR PARENTAL CONTROL ADVISORY AS A DISPLAY CRITERION
48
PROVIDE OPTION TO SELECT A CERTAIN TYPE OF CHANNEL AS A DISPLAY CRITERION
50
PROVIDE OPTION TO SELECT A GIVEN TOPIC, KEYWORD, OR SPORTING TEAM AS A DISPLAY CRITERION
52

FIG. 2

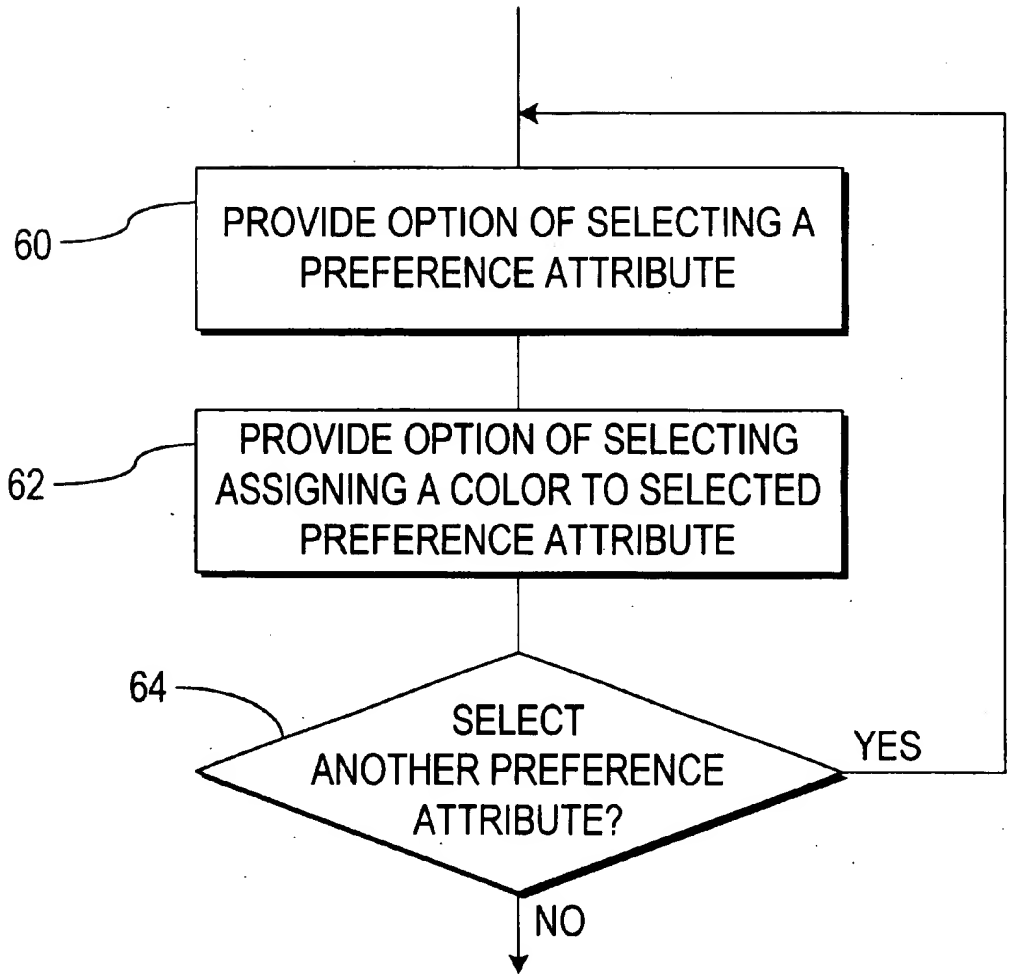

60
PROVIDE OPTION OF SELECTING A PREFERENCE ATTRIBUTE
62
PROVIDE OPTION OF SELECTING ASSIGNING A COLOR TO SELECTED PREFERENCE ATTRIBUTE
64
SELECT ANOTHER PREFERENCE ATTRIBUTE?
YES
NO

FIG. 3

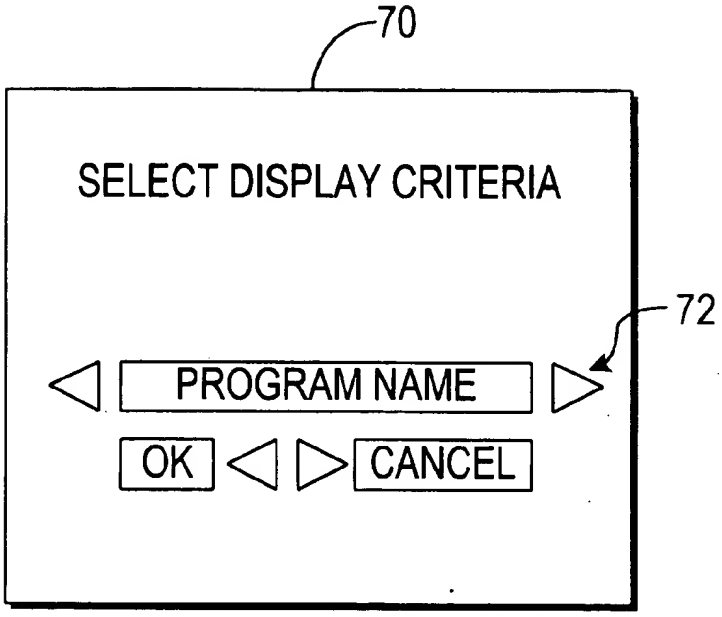

70
SELECT DISPLAY CRITERIA
72
PROGRAM NAME
OK
CANCEL

FIG. 4

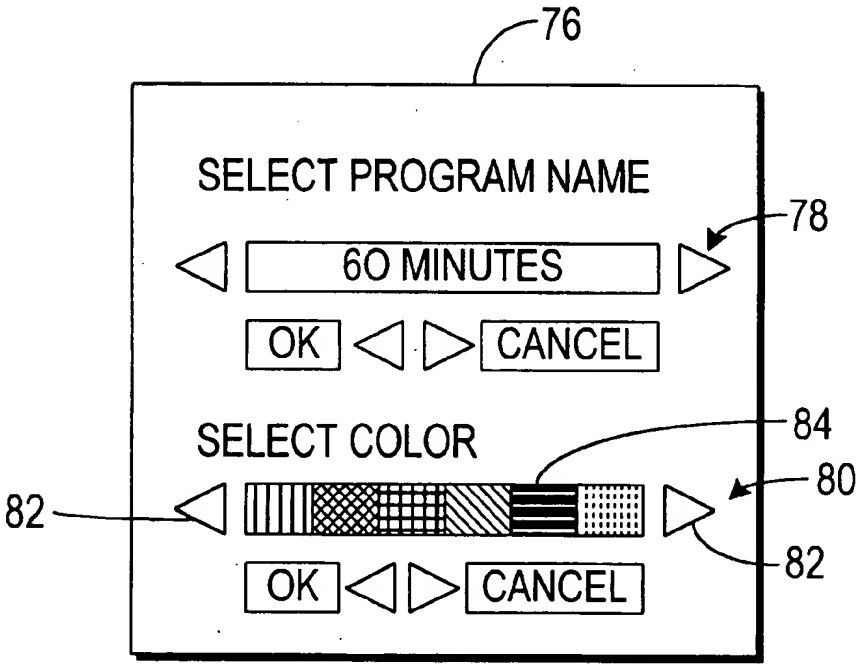

76
SELECT PROGRAM NAME
78
60 MINUTES
OK
CANCEL
SELECT COLOR
84
80
82
82
OK
CANCEL

FIG.5

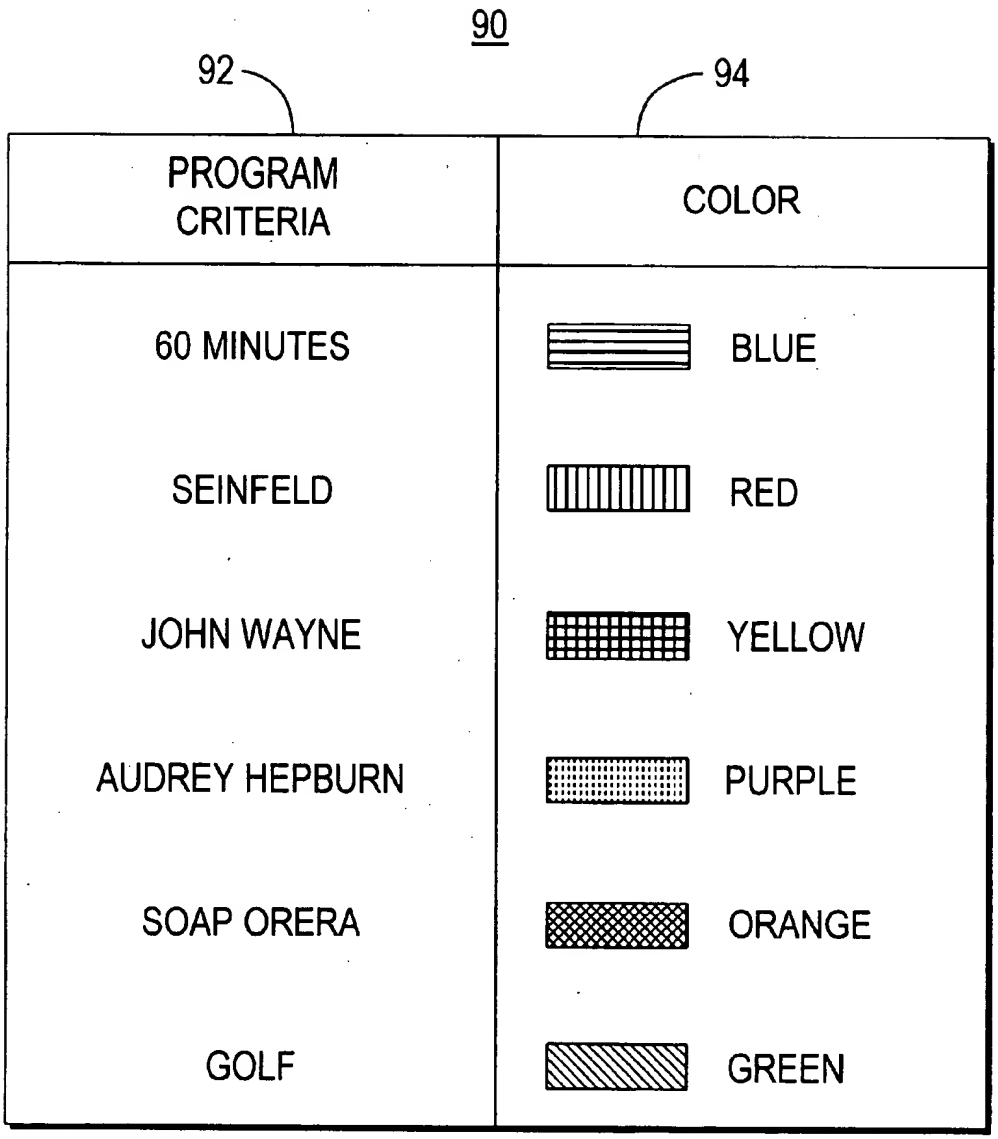

90
92
94
PROGRAM CRITERIA
COLOR
60 MINUTES
BLUE
SEINFELD
RED
JOHN WAYNE
YELLOW
AUDREY HEPBURN
PURPLE
SOAP ORERA
ORANGE
GOLF
GREEN

FIG. 6

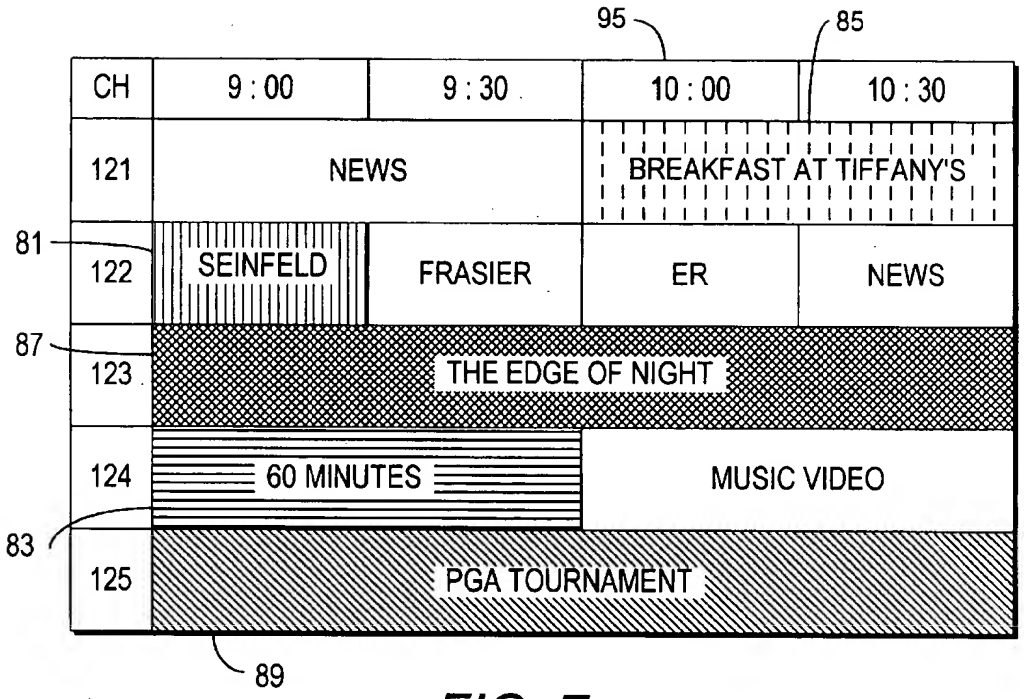

95
85
CH
9 : 00
9 : 30
10 : 00
10 : 30
121
NEWS
BREAKFAST AT TIFFANY'S
81
122
SEINFELD
FRASIER
ER
NEWS
87
123
THE EDGE OF NIGHT
124
60 MINUTES
MUSIC VIDEO
83
125
PGA TOURNAMENT
89

FIG. 7

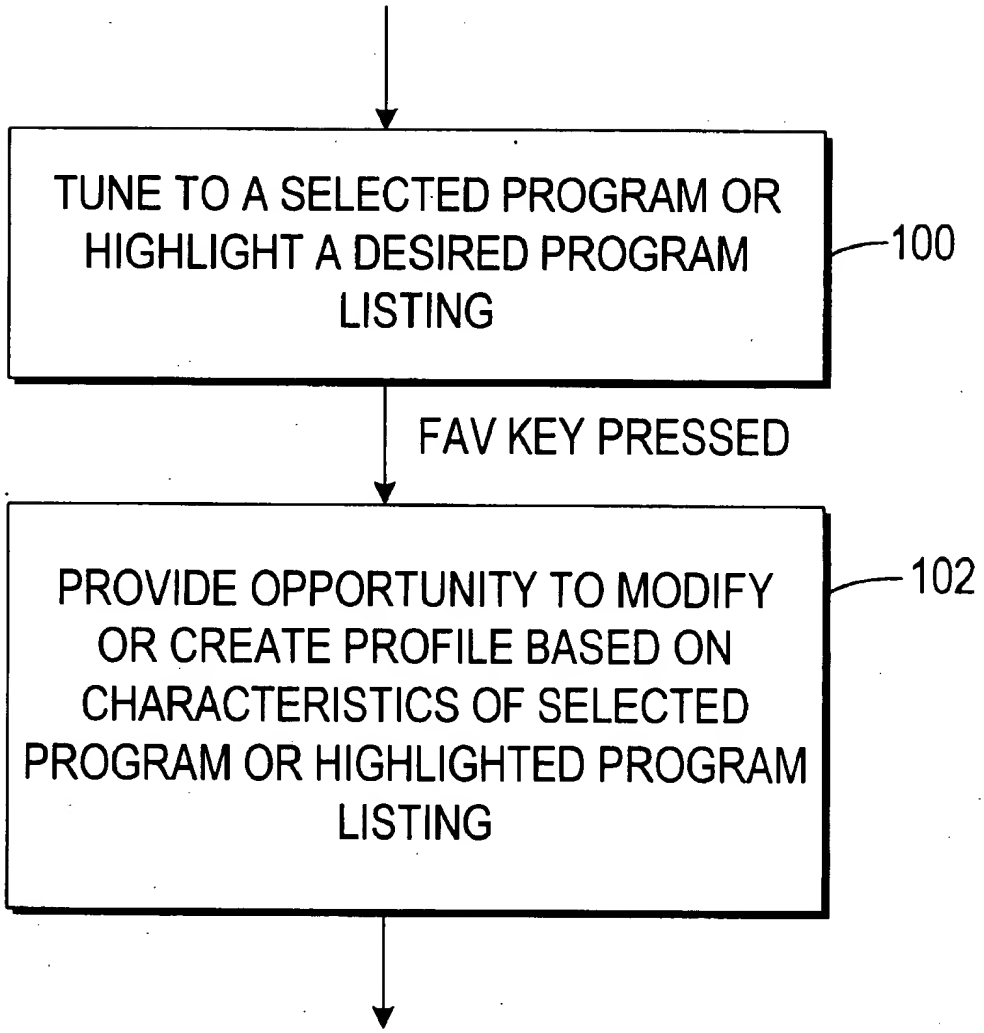

TUNE TO A SELECTED PROGRAM OR HIGHLIGHT A DESIRED PROGRAM LISTING
100
FAV KEY PRESSED
PROVIDE OPPORTUNITY TO MODIFY OR CREATE PROFILE BASED ON CHARACTERISTICS OF SELECTED PROGRAM OR HIGHLIGHTED PROGRAM LISTING
102

FIG. 8

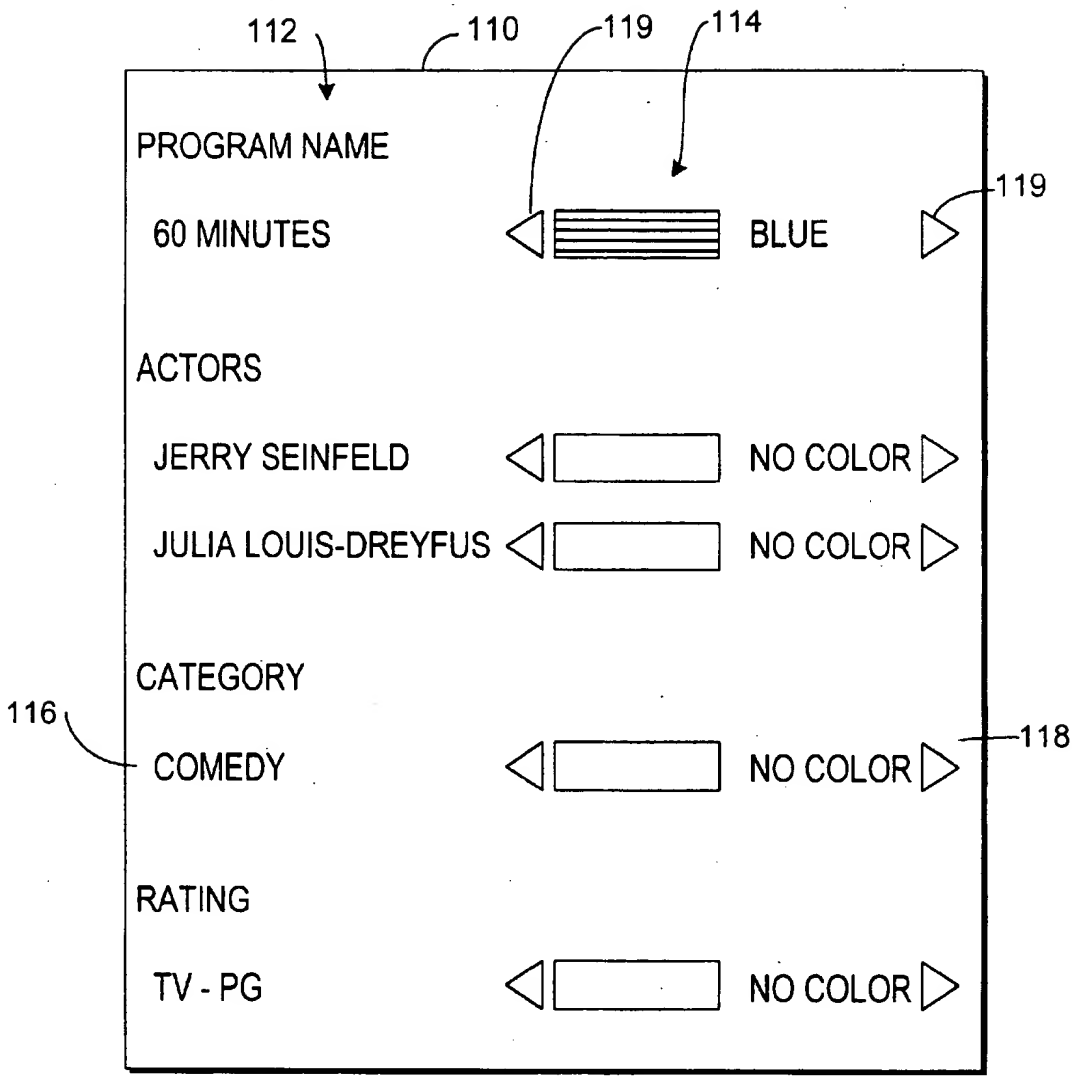

112
110
119
114
PROGRAM NAME
60 MINUTES
BLUE
119
ACTORS
JERRY SEINFELD
NO COLOR
JULIA LOUIS-DREYFUS
NO COLOR
CATEGORY
116
COMEDY
NO COLOR
118
RATING
TV - PG
NO COLOR

FIG. 9

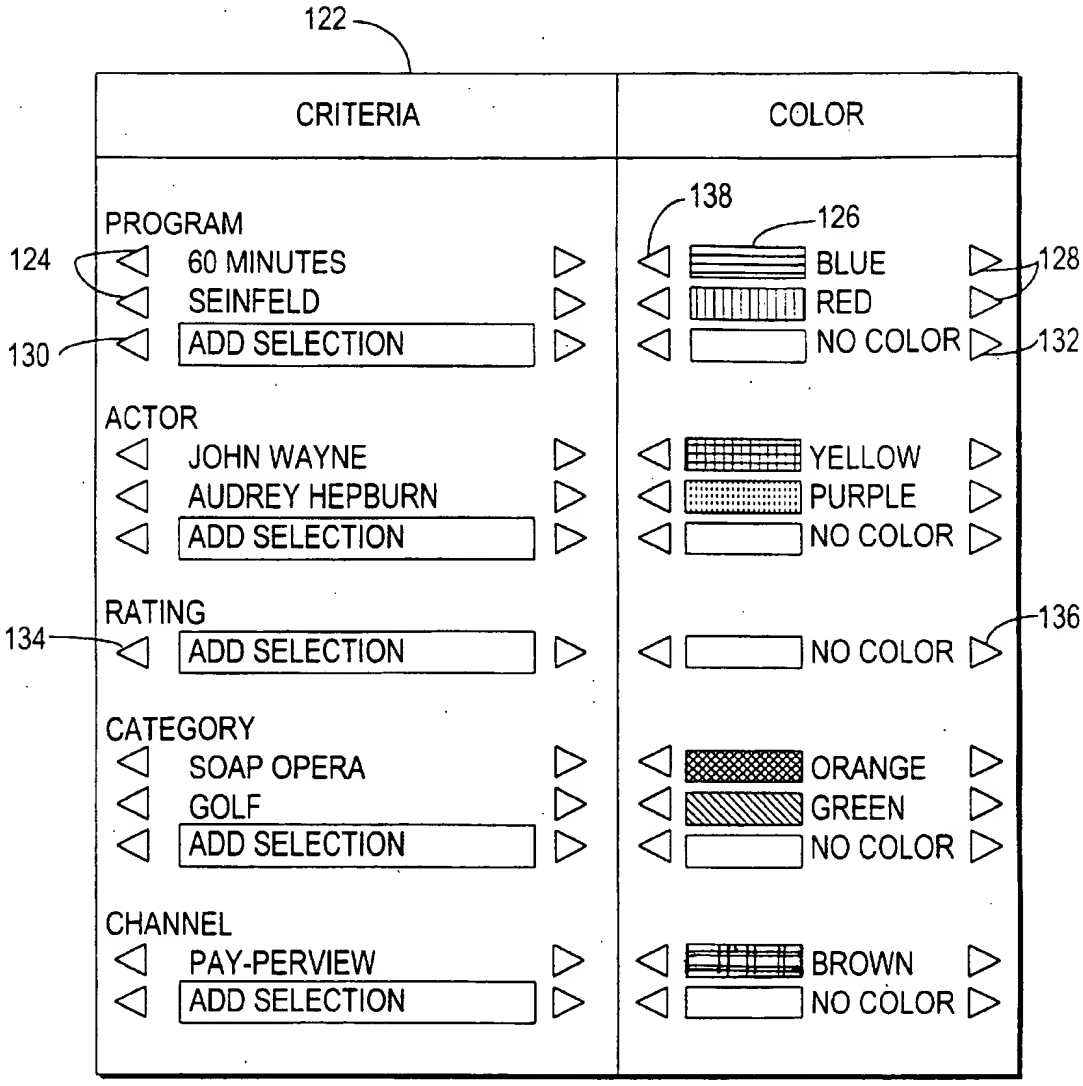

122
CRITERIA
COLOR
PROGRAM
60 MINUTES
SEINFELD
ADD SELECTION
ACTOR
JOHN WAYNE
AUDREY HEPBURN
ADD SELECTION
RATING
ADD SELECTION
CATEGORY
SOAP OPERA
GOLF
ADD SELECTION
CHANNEL
PAY-PERVIEW
ADD SELECTION
BLUE
RED
NO COLOR
YELLOW
PURPLE
NO COLOR
NO COLOR
ORANGE
GREEN
NO COLOR
BROWN
NO COLOR
124
126
128
130
132
134
136
138

FIG. 10

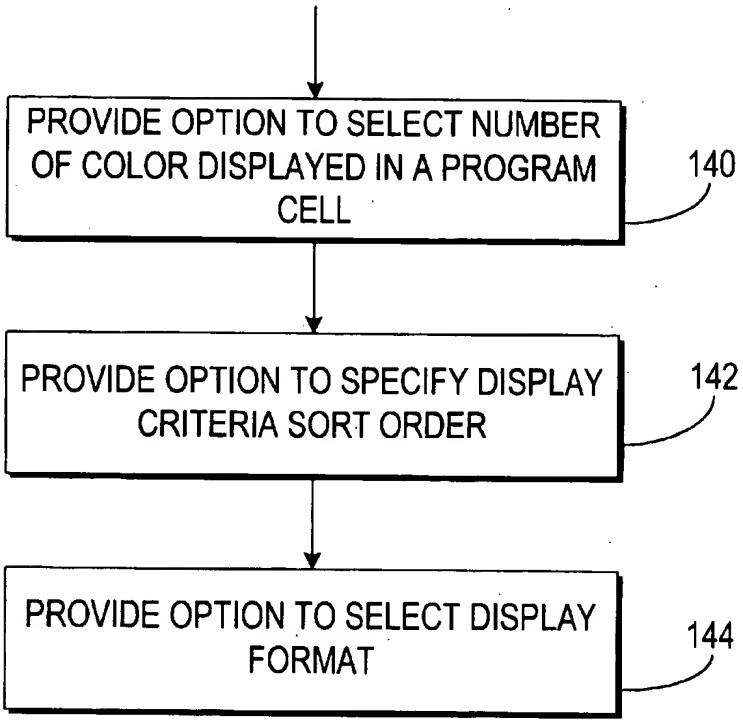

PROVIDE OPTION TO SELECT NUMBER OF COLOR DISPLAYED IN A PROGRAM CELL
140
PROVIDE OPTION TO SPECIFY DISPLAY CRITERIA SORT ORDER
142
PROVIDE OPTION TO SELECT DISPLAY FORMAT
144

FIG. 11

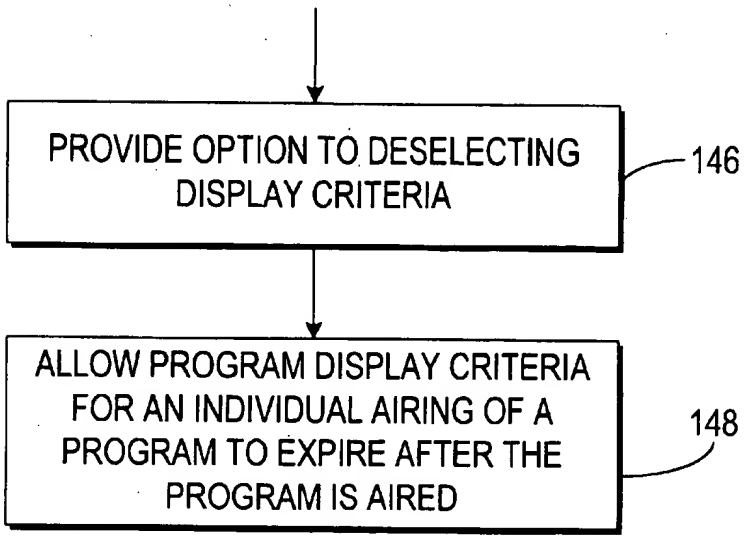

PROVIDE OPTION TO DESELECTING DISPLAY CRITERIA
146
ALLOW PROGRAM DISPLAY CRITERIA FOR AN INDIVIDUAL AIRING OF A PROGRAM TO EXPIRE AFTER THE PROGRAM IS AIRED
148

FIG. 12

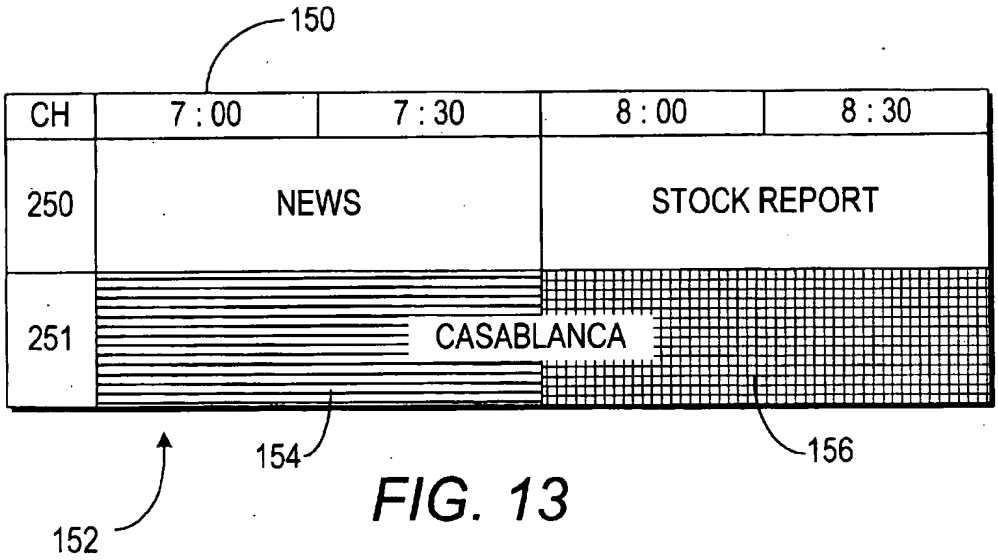

150
CH
7 : 00
7 : 30
8 : 00
8 : 30
250
NEWS
STOCK REPORT
251
CASABLANCA
154
156
152

FIG. 13

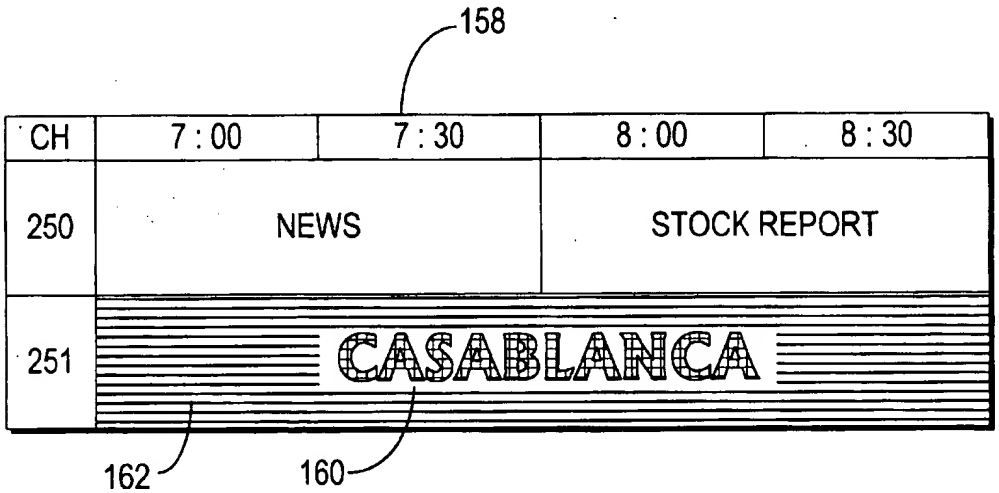

158
CH
7 : 00
7 : 30
8 : 00
8 : 30
250
NEWS
STOCK REPORT
251
CASABLANCA
162
160

FIG. 14

PROFILE NO.1	PROFILE NO.2	PROFILE NO.3
SEINFELD - BLUE	ER - YELLOW	COMEDY - YELLOW
60 MINUTES - RED	COMEDY - RED	JAMES STEWART - BLUE
DRAMA - ORANGE		X-FILES - GREEN

FIG. 15

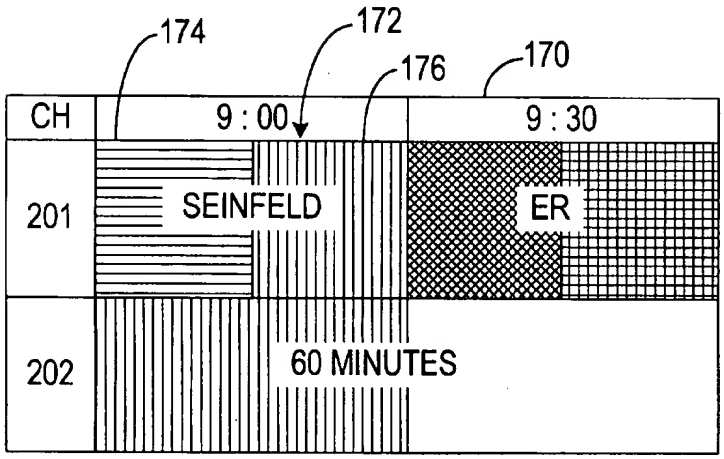


FIG. 17

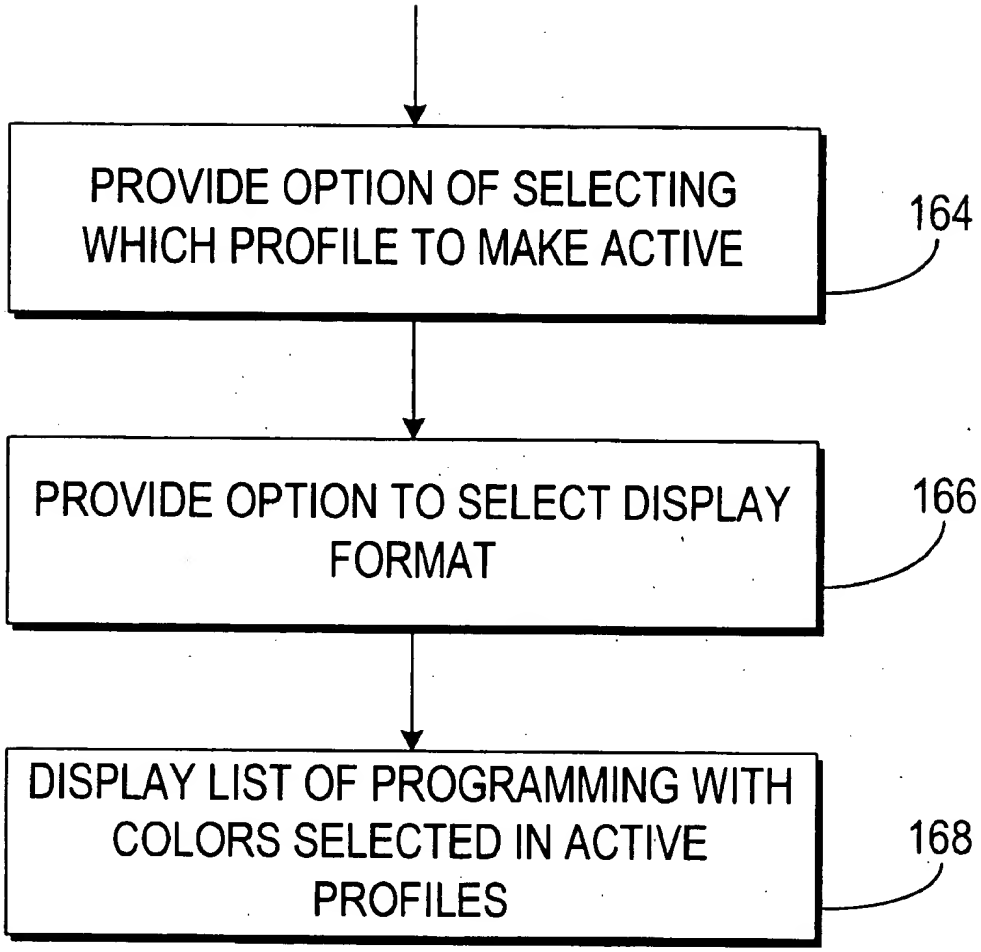

PROVIDE OPTION OF SELECTING WHICH PROFILE TO MAKE ACTIVE
164
PROVIDE OPTION TO SELECT DISPLAY FORMAT
166
DISPLAY LIST OF PROGRAMMING WITH COLORS SELECTED IN ACTIVE PROFILES
168

FIG. 16

PROGRAM GUIDE SYSTEM WITH USER DESIGNATED COLOR CODING

CROSS-REFERENCE TO RELATED APPLICATIONS

This application claims the benefit of U.S. provisional patent application No. 60/089,485, filed Jun. 16, 1998.

BACKGROUND OF THE INVENTION

This invention relates to interactive television program guides, and more particularly, to television program guides in which users may create profiles of their programming preferences. Profiles contain information about the user's interests (e.g., favored or disfavored programming genres, actors, channels, series, etc.) The profiles are used by the program guide in determining how programming information is presented to the user.

Cable, satellite, and broadcast television systems provide users with a large number of television channels. Users have traditionally consulted printed television program schedules to determine the programs being broadcast at a particular time. More recently, interactive electronic television program guides have been developed that allow television program information to be displayed on a user's television.

Interactive program guides are typically implemented on set-top boxes. Such program guides allow users to view television program listings in different display formats. For example, a user may instruct the program guide to display a grid or table of program listings organized in a channel-ordered or a time-ordered list. Users may also search and sort program listings by genre (e.g., movies, sports, etc.) or by title (i.e., alphabetically). A user may obtain additional information for a program by placing a highlight region on a desired program listing and pressing an "info" button. The user may purchase a pay program from the program guide by placing the highlight region on a program listing and pressing an "OK" button. Some systems allow the user to select a program for recording by placing the highlight region on a program listing and pressing a "record" button.

Because there are so many television channels available, particularly with cable and satellite television systems, television program guides have been developed that allow users to designate favorite channels or broad programming categories, or genres.

This approach is not very selective. Even though a user may have chosen a channel to be highlighted in color, some of the programming that appears on that channel may not be of interest to the user. The same would apply to program genres, wherein not all movies, nor all sports events, etc., would be of interest to the user. Moreover, programs that would be of interest to the user often appear on channels or in genres that the user has not chosen as favorites (e.g., because the user does not like most of the programming on that channel or in that genre).

What is needed is a more sophisticated way in which a user may inform a program guide of the user's preferences, so that the program guide can more accurately highlight programming of the type the user likes.

It is therefore an object of the present invention to provide a program guide system with which a user may set up a profile based on various preference attributes indicative of a user's interests.

SUMMARY OF THE INVENTION

These and other objects of the invention are accomplished in accordance with the principles of the present invention by providing a interactive television program guide system in which a user may inform a program guide of the user's television programming interests. The user may specify a number of program characteristics such as program title, genre or category, rating, actor, etc. as preferred attributes. For each preferred attribute, the user may select a particular color. A preference attribute and its respective color are associated as a display criterion. A plurality of display criteria may be set by the user. The programming list may be displayed based on the display criteria, i.e. the preference attributes and selected colors.

The program guide may be created or modified by selecting program characteristics as preferred attributes. Each preference attribute is assigned a color by the user. Alternatively, the program guide may be created or modified by highlighting a program listing or selecting a program to which to which the user has tuned. The program characteristics of the highlighted program listing or the selected program may be selected as preference attributes to which colors are assigned.

A user may define the display format of each program. For example, a user may define the maximum number of colors that may be displayed for a single program. A user may define a preferred sort order for display criteria and may display colors in the defined sort order.

The program guide may maintain the display criteria in a preference profile. Different preference profiles may be used by different users of the same program guide. If desired, more than one preference profile may be active at a given time. A master profile may be used that has settings that override the settings in other profiles.

Further features of the invention, its nature and various advantages will be more apparent from the accompanying drawings and the following detailed description of the preferred embodiments.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a diagram of a system in which an interactive television program guide is implemented in accordance with the present invention.

FIG. **2** is a flow chart of steps involved in providing options for selecting various display criteria in accordance with the present invention.

FIG. **3** is a flow chart showing further steps involved in providing options for selecting display criteria.

FIG. **4** is an illustrative selection screen for selecting display criteria in accordance with the present invention.

FIG. **5** is an illustrative selection screen for selecting colors associated with the various selected display criteria.

FIG. **6** is a diagram of an illustrative preference profile showing how multiple display criteria of the same type may be associated with the same preference profile.

FIG. **7** is an illustrative by-time program listings display in accordance with the present invention.

FIG. **8** is a flow chart illustrating how the program guide provides an opportunity to modify a profile based on the criteria of a selected program in accordance with the present invention.

FIG. **9** is a diagram of an illustrative profiles display in accordance with the present invention.

FIG. **10** is a diagram of another illustrative profiles display in accordance with the present invention.

FIG. **11** is a flow chart of steps involved in selecting a display format in accordance with the present invention.

FIG. **12** is a flow chart of steps involved in allowing a selected. preference attribute to expire or be deselected in accordance with the present invention.

FIG. **13** is another illustrative by-time program listings display in accordance with the present invention.

FIG. **14** is yet another illustrative by-time program listings display in accordance with the present invention.

FIG. **15** is a diagram illustrating how multiple profiles may be used and how a given display criteria may be associated with more than one such profile in accordance with the present invention.

FIG. **16** is a flow chart of steps involved in selecting a profile to make active and displaying programming based on one or more active profiles in accordance with the present invention.

FIG. **17** is an illustrative by-time program listings display in accordance with the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

An illustrative program guide system **10** in accordance with the present invention is shown in FIG. **1**. Main facility **12** contains a program guide database **14** for storing program guide information such as television program guide listings data, pay-per-view ordering information, television program promotional information, etc. Information from database **14** may be transmitted to television distribution facility **16** via communications link **18**. Link **18** may be a satellite link, a telephone network link, a cable or fiber optic link, a microwave link, a combination of such links, or any other suitable communications path. If it is desired to transmit video signals over link **18** in addition to data signals, a relatively high bandwidth link such as a satellite link is generally preferable to a relatively low bandwidth link such as a telephone line.

Television distribution facility **16** is a facility for distributing television signals to users. Television distribution facility **16** may be, for example, a cable system headend, a broadcast distribution facility, a satellite television distribution facility, or any other distribution facility.

The program guide information transmitted by main facility **12** to television distribution facility **16** includes television program listings data for current and future television programs. The television program listings data for each program preferably includes program information, e.g., the title of the program, the channel for the program, a scheduled broadcast time (start time) and an ending time (or duration). Other typical program information include ratings, critics ratings, descriptions, genres (sports, movies, children, etc.), actors, etc. Transmitted program information may also include advertising information and pay program data such as pricing information for individual programs and subscription channels, time windows for ordering programs and channels, telephone numbers for placing orders that cannot be impulse ordered, etc.

Television distribution facility **16** distributes television programming and program information to the user television equipment **20** or the user personal computer (PC) equipment **22** of multiple users via communications paths **24** and **26**, respectively.

For example, television programming may be distributed over analog television channels and program guide data may be distributed over an out-of-band channel on paths **24**. Data distribution may also involve using one or more digital channels on paths **24** and **26**. Such digital channels may also be used for distributing television programming and other information. Multiple television and audio channels (analog, digital, or both analog and digital) may be provided to set-top boxes **28** via communications paths **24**. Program listings and other information may be distributed via communications paths **26** to PC equipment **22**. In addition, program listings and other data may also be distributed by one or more distribution facilities that are similar to but separate from television distribution facility **16** using communications paths that are separate from communications paths **24** and **26**.

Certain functions such as pay program purchasing may require set-top boxes **28** to transmit data to television distribution facility **16** over communications paths **24**. If desired, such data may be transmitted over telephone lines or other separate communications paths. If functions such as these are provided using facilities separate from television distribution facility **16**, some of the communications involving set-top boxes **28** may be made directly with the separate facilities.

Each user has a receiver, which is typically a set-top box such as set-top box **28**, but which may be other suitable television equipment into which circuitry similar to set-top-box circuitry has been integrated. Program guide data is distributed to set-top boxes **28** periodically, continuously, or on demand. Television distribution facility **16** may also poll set-top boxes **28** periodically for certain information (e.g., pay program account information or information regarding programs that have been purchased and viewed using locally-generated authorization techniques). Main facility **12** preferably contains a processor to handle information distribution tasks. Each set-top box **28** preferably contains a processor to handle tasks associated with implementing a program guide application on the set-top box **28**. Television distribution facility **16** may contain a processor for tasks associated with monitoring a user's interactions with the interactive program guide implemented on set-top boxes **28** and for handling tasks associated with the distribution of program guide data and other information to user television equipment **40**.

Each set-top box **28** is typically connected to an optional videocassette recorder **30** so that selected television programs may be recorded. Each videocassette recorder **30** is connected to a television **32**. To record a program, set-top box **28** tunes to a particular channel and sends control signals to videocassette recorder **30** (e.g., using an infrared transmitter) that direct videocassette recorder **30** to start and stop recording at the appropriate times.

During use of the interactive television program guide implemented on set-top box **28**, television program listings and other information may be displayed on television **32**. Such program guide displays may be presented on top of a television program to which the user has tuned with set-top box **28** or may be presented in place of such a program. Guide displays may be in the form of a grid, a list, or any other suitable format. Each set-top box **28**, videocassette recorder **30**, and television **32** may be controlled by one or more remote controls **34** or any other suitable user input interface such as a wireless keyboard, mouse, trackball, dedicated set of buttons, etc. Remote controls such as remote control **34** have various buttons that may be pressed by the user such as cursor keys (for on-screen movement of a highlight region, scrolling functions, etc.), an enter key (for making a selection), channel number keys (for selecting a television channel), a favorites key (to invoke functions related to user preferences), etc.

PC equipment, such as PC equipment **22**, may also be used with the interactive program guide. Web browsers or

other applications implemented on CPU **36** may be used to access and display the program guide information on the PC monitor **38**. User selections and inputs may be made by a keyboard **40**, mouse, trackball, or other PC input devices. If desired, program guide data may be provided to user PC equipment **22** over the Internet or any other suitable communications path separate from communications path **26**. It is understood that the following discussion, although directed to user television equipment and set top boxes, is applicable to program guides used in connection with PC equipment.

Modern cable and satellite systems provide users with a wide range of programming, of which only a portion may be of interest at a particular time. The subject invention allows users to selectively modify the appearance of their program guides to highlight particular programming that the user has defined an interest in. As described above, program listings data provides various program characteristics, such as program title, program genre or category, actors, etc. The user may select particular program characteristics (of the many available) to serve as preference attributes and assign a color for each preference attribute. The preference attribute and its respective colors are associated as display criteria for use by the program guide. More particularly, the colors may be displayed in the program guide to provide visual emphasis to programming that meets the preferred criteria, and to allow the user to quickly and easily recognize such programming. Programming which does not fall within the preferred criteria is also displayed, although without particular color coding.

The subject invention provides several ways the user can define programming preferences with greater specificity than simply by channel or broad genre. The user may select particular ones of the program characteristics as preference attributes. For example, preference attributes may be the title of a serial program or the name of an actor. Likewise, a preference attribute may be a programming genre or category, or a topic of interest. Thus, a user may inform the program guide that the user likes a particular serial program, such as "60 Minutes," a particular actor, such as John Wayne, a particular programming category, such as soap operas. Conversely, a user may inform the program guide of programs, actors, or genres that the user dislikes. The preference attributes are selected from the program listings data, described above. For each of these preferences, the user may assign a color. After the selections have been made, the program guide may access program listings data and search for programming having the preferred preference attributes. When a program satisfies any of the above criteria, the program guide then displays the listing or cell associated with the television program in an associated color.

The program guide implemented on set-top box **28** provides various options that allow the user to specify which program characteristics will serve as preference attributes and will be specially colored in the television program listings information that is displayed for the user. Such options may be provided in the form of clickable menu items, drop-down lists, or any other suitable format. The user may select a desired menu item using a highlight region, cursor, arrow, or other suitable on-screen indicator that may be positioned over an option on the display (i.e., television **32**). For example, a user may position a highlight region over a desired menu item and press "OK" on remote control **34** to complete the selection. Selections that involve entering characters may be made by selecting characters from characters displayed on the screen (e.g., using cursors to move through the alphabet) or by using a wireless keyboard or other alphanumeric entry device.

The user may define preference attributes and assign colors to these attributes in several ways. These selections are typically organized in a profile (sometimes called a preference profile or a favorites profile), which may be set up according to several possibilities. (see, for example, Ellis et al. U.S. patent application Ser. No. 09/034,934, filed Mar. 4, 1998, which is hereby incorporated by reference herein in its entirety). A first approach for setting up a profile, which may be performed during an initial set up procedure, permits the user to scan through the various program listings data, select preferred criteria, and assign colors to each one, if desired. A second approach permits the program characteristics of a particular favorite (or disfavored) program to be retrieved and particular characteristics of the favorite program to be selected as preference attributes and assigned colors to aid in recognizing later broadcasts of similar program content. A third approach permits the user to access previously designated preference attributes and associated colors, and to modify these selections individually.

Set up procedures according to the first approach to select preference attributes and assign colors to the program guide are shown in FIG. **2**. At step **40** of FIG. **2**, the program guide may provide the user with the option of selecting a given program and color as a display criterion. As illustrated at step **60** in FIG. **3**, the user selects the program as a preference attribute. For example, the user could indicate an interest in the "60 Minutes" program, whenever it is aired. The user may select the program name from a list of available programs, or the user may type the program name, as described in greater detail, below. At step **62**, the user is given the opportunity to set one of at least several colors for the selected program. After selecting a color for the display criterion "60 Minutes", whenever the program guide displays a list of available programs, the "60 Minutes" program will be displayed in the selected color. This feature allows a user to easily recognize a program when it appears in the program listing. The user is then given the opportunity to select another program title at step **64**.

With continued reference to FIG. **2**, step **42** may provide the user with the option of selecting a given airing of a program and a color as a display criterion. For example, if the user wishes to watch the next broadcast of the program "60 Minutes" at 7:00 on Sunday, the user may select that broadcast of "60 Minutes" as a preference attribute. As illustrated in FIG. **3**, the selection of the specific airing is made at step **60**, and the color selection is made at step **62**. The user may then be provided at step **64** with an opportunity to select another given airing of a program.

At step **44**, the program guide may provide the user with the option of selecting a particular actor or actress and a color as a display criterion at step **62** (FIG. **3**). As described above, step **64** prompts the user to select another actor, if desired, and assign it a color.

At step **46**, the program guide may provide the user with the option of selecting as a display criterion a program genre (category) or other suitable grouping (e.g., all programs aired on Sundays, etc. —that are not in a traditional genre, but that are in some way related) and a color. For example, the genre (which may be a sub-genre) may be children's programming, news, weather, movies, action, horror, baseball, football, comedy, etc. Step **60** (FIG. **3**) provides the user with the option of selecting a program genre, and step **62** provides the user with the option of assigning a color for that program genre.

At step **48**, the program guide may provide the user with the option of selecting a rating (G, PG, TV-Y, etc.), a range of ratings (e.g., the R rating and all ratings for more mature audiences), or a parental control advisory (e.g., this program contains strong language, etc.) and assign a particular color at step **62** (FIG. **3**).

At step **50**, the program guide may provide the user with the option of selecting a particular type of channel, such as pay-per-view channel, and a color as a display criterion. Assignment of a color to the selected type of channel may occur at step **62** of FIG. **3**. Thus the user may be alerted to certain types of programming, e.g., pay-per-view programming, without requiring the user to individually select or even know the names of all of the pay-per-view channels that are available.

At step **52**, the program guide may provide the user with the option of selecting a topic (e.g., cooking, photography, music, painting), keyword (e.g., cooks, etc.), or sporting team and a color as a display criterion. When the program listing is displayed, the guide may search the listings data for a topic, keyword that is provided in the information for each program.

The steps involved in providing the preference attributes selection options shown in FIG. **2** are illustrative only and the program guide may provide the user with the option of selecting any other suitable display criteria if desired. Moreover, the order of the steps shown in FIG. **2** is not important. Typically, several such options are provided at the same time (e.g., on the same menu screen). Alternatively, the user may select preference attributes first and subsequently assign all colors after the preference attributes are selected.

Exemplary display screens which allow the user to select display criteria are illustrated in FIGS. **4** and **5**. As illustrated in FIG. **4**, the user may be asked to select a preference attribute for color assignment in screen **70**. The options presented to the user at option **72** may include the program characteristics illustrated in FIG. **2**. For example, the user may select "program name," as shown in the FIG. Screen **76**, illustrated in FIG. **5**, may be used to allow the user to select a particular program name at option **78**. For example, the user may select "60 Minutes." Subsequently, option **80** may permit the user to assign a particular color to the selection "60 Minutes." FIG. **5** illustrates a list of available colors for selection. The user may use the color selection keys **82** to highlight a particular color **84**, and make a selection. Alternatively, the user may select a color from a color wheel, a list of colors, or by representing the color by word name, i.e., the word "blue." In order to distinguish between various colors, it is contemplated that the colors selected may include colors represented on different backgrounds, e.g., solid or striped, or the colors may be combined with various icons or symbols.

An illustrative preference profile **90** containing a number of display criteria is shown in FIG. **6**. Display criteria are displayed such that preference attributes **92** are adjacent associated colors **94**. FIG. **7** shows an illustrative program guide display screen **95** that may be generated by the subject invention using the preference profile of FIG. **6**. For example, the programs "Seinfeld" (red) and "60 Minutes" (blue) were selected as display criteria, and cells **81** and **83** are appropriately displayed. The actress Audrey Hepburn (purple) had been selected as display criteria. Consequently, cell **85** for "Breakfast at Tiffany's," a program starring Audrey Hepburn, is displayed in the associated color purple. Additional display criteria selected were golf (green) and soap operas (orange) as the program categories. Thus, cell **87** for soap opera "The Edge of Night" is displayed in orange, and cell **89** for golf program "PGA Tournament" is displayed in green. The remaining cells are displayed for the user's information, but are not highlighted. The program guide display screen of FIG. **7** is illustrative only.

In accordance with the second approach, display criteria may be selected by example. This is illustrated in FIG. **8**. At step **100**, the user may tune set-top box **28** to a channel (e.g., channel 9) to watch a desired television program (e.g., the program "60 Minutes") or may highlight a desired program listing on any suitable program listings screen. The user may then press an appropriate button on the remote control (e.g., a "FAV" or favorites key) or may click on an on-screen option. The program guide then provides an opportunity to modify or create a profile based on the program characteristics of the selected program or the highlighted program listing at step **102**.

For example, as shown in FIG. **9**, the program guide may present a profiles display, such as profiles display **110**, in which all characteristics of the selected program or highlighted program listing ("Seinfeld") are listed in column **112**. The characteristics listed in column **112** are available from the program listings data. Where program characteristics have been selected as preference attributes, the associated colors are listed in column **114**. The neutral selection "no color" is displayed as a default, as shown in the FIG., wherein no color selection has been made for the characteristics such as actor, category, or rating. After selecting the program, additional program characteristics, such as the category comedy **116**, may be selected as a preference attribute and a color assigned at option **118**. Previously selected colors in column **114** may be modified for each of the other attributes listed in column **120** by color selection keys **119**. If desired, a previously selected criteria may be deselected from the profile.

The third approach in which profiles may be modified is shown in FIG. **10**. Profiles display **122** of FIG. **10** allows the user to view all selected display criteria for a given profile. Option **124** allows the user to select or change programs as display criteria. When a particular program is selected for option **124**, the associated color **126** is displayed with it. Option **128** allows the user to set colors for various programs. Option **130** allows the user to add program titles to the profile. Option **132** allows the user to set colors for the additional programs. For some program characteristics, no display criteria have been selected. (E.g., no ratings have been selected.) Option **134** allows the user to select a rating as a display criteria, and option **136** permits the user to select a color for that rating. The options shown in profiles display **122** are illustrative only. The format of the options shown in FIG. **10** is only illustrative.

Other user interfaces may be used by the program guide if desired. For example, it may be preferable to select colors from a list (i.e., using arrows **138** in option **128** to select from among various available colors). In option **130**, the program guide may allow the user to enter the first few characters of a desired title. The program guide may then present a list of available titles that start with those letters. When the list has been narrowed sufficiently, the user may select the desired program title from the list. The program guide may allow text to be entered letter by letter using the cursor keys on the remote to change each letter, using a wireless keyboard, using the numeric keys on the remote to enter letters corresponding to a telephone keypad, etc. If desired, the program guide may allow users to remove attributes from the profile being modified using profiles display **122**.

The user may be given the option to select how the color information is presented in the program guide. As described above with respect to FIG. **9**, a program has several program characteristics, i.e., program title, rating, actors, etc. The user may select particular characteristics as preference attributes and assign a color for each preference attribute, thereby creating a display criterion. Thus any program may meet more than one of the selected display criteria and therefore, may have more than one color associated with it. For example, the user may have created a display criterion for displaying dramas in blue. Moreover, the user may have also created a display criterion for displaying programming with actor Humphrey Bogart in yellow. Thus, when "Casablanca," a drama with Humphrey Bogart, is displayed in the program guide, at least two colors, yellow and blue are appropriate for display. The program guide may provide the user with the option to decide which, if any, display criterion are to be used. At step **140** of FIG. **11**, the user is given the option to select the maximum number of colors to be displayed for any one program in a cell. For example, the user may want to display only one color for a program cell.

As illustrated in FIG. **11**, the program guide provides the user with the option of specifying the sort order (i.e., priority) for each of the selected display criteria at step **142**. For example, the user may decide that the category dramas is of particular interest and the cast of actors is of secondary interest. According to this priority, the user would want programming ("Casablanca") that has both a selected category (drama) and a selected actor (Humphrey Bogart) to be displayed according to the higher priority criteria, i.e., blue for dramas. Thus, when displaying programs that satisfy more than one display criterion, the program cell will be displayed in the color of the criterion having the highest priority. This feature is particularly useful when a user wishes to further simplify the process of selecting programs that may be of interest.

Alternatively, the user may select at step **140** that a program be displayed in two (or more) colors for the relevant program. Continuing with the example above, the user may prefer instead to be alerted to the fact that "Casablanca" is a drama and also features actor Humphrey Bogart. Thus, the user would wish to see "Casablanca" displayed in both blue and yellow colors.

At step **144** (FIG. **11**), the user has the option of setting the display format of the guide. Colors associated with each criterion may be displayed simultaneously in a cell for a single program listing. For example, multiple colors may be displayed in equally sized color blocks in a program listing. FIG. **13** illustrates a by-time display **150**, wherein the cell **152** for "Casablanca" is displayed in two colors, i.e. blue block **154** and yellow block **156**. Alternatively, a color may be selected for text, and a different color may be selected for the background field. As FIG. **14** illustrates for by-time display **158**, the text **160** for the title "Casablanca" is represented in yellow, and the background **162** is represented in blue. Alternatively, a plurality of colors may be represented in alternating stripes, in patterns, or any other format for displaying two or more colors in a single program listing cell.

The program guide may allow colors that have been selected by the user to remain valid until deselected by the user (step **146**) illustrated in FIG. **12**. Alternatively, when a user selects an individual airing of a program as part of a preference profile, the program guide will allow that selection to expire at the end of the program. This is shown as step **148** in FIG. **12**.

If there are several users (e.g., different family members) associated with a given program guide, each user may have his own profile. A profile may contain more than one display criterion of the same type. For example, preference profile **80** of FIG. **6** has two series criteria ("Seinfeld" and "60 Minutes"), two actor criteria (John Wayne and Audrey Hepburn), and two category criteria (golf and soap operas). Although six display criteria have been illustrated in three general groupings in the exemplary profile, the user may select as many criteria as desired.

The program guide allows multiple profiles to be used. For example, different users (e.g., different family members who share user television equipment **40**) may each have their own profile. One profile may be used for children. Another profile may be used for children when watching television with their parents (who can supervise). A profile may be created for each adult. Another profile may be created for adults to use when watching television together.

An illustrative set of profiles is shown in FIG. **15**. Profile No. 1 belongs to a first user who has designated the serial program "Seinfeld" (blue), the serial program "60 Minutes" (red), and the category drama (orange) as display criteria. Profile No. 2 belongs to a second user who has designated the program ER (yellow) and the category comedy (red) as display criteria. Profile No. 3 belongs to a third user who has designated the category comedy (yellow), the actor James Stewart (blue), and the program X-Files (green).

Although each profile has its own independent set of display criteria, any given criterion may be in more than one profile. For example, the criterion comedy appears in both profile No. 2 and profile No. 3 (although with different colors assigned to each).

When a user desires to use the program guide, the user may activate an appropriate profile. As shown in FIG. **16**, the program guide provides users with the option of selecting which profile to make active at step **164**. More than one profile may be active at a given time.

When multiple profiles are used at the same time, the program guide may provide the user the option of selecting a display format at step **166**, and subsequently displaying the list of programming at step **168**. According to one display format, the program guide may display the criteria for a single profile only. (For this purpose, a master profile may be designated.) Alternatively, the program guide may display colors for each active profile in a given field within the program cell. As yet another alternative, the colors for each profile may be displayed in a unique field or background. These techniques for following multiple profiles to be active at the same time are illustrative only. Any other suitable technique may be used if desired.

For example, when multiple listings are active, the user may select at step **166** that colors for all active profiles will be displayed in a particular field, or portion, of the cell. Thus, when a program satisfies the criteria of both Profiles No. 1 and No. 2 (FIG. **14**), the program guide may display Profile No. 1 selections on the left of each cell, and Profile No. 2 selections on the right of each cell. In the by-time listings display **170** of FIG. **17**, the programs "Seinfeld," "60 Minutes", and the category drama satisfy the display criteria in Profile No. 1. The program ER and the category comedy satisfy the display criteria in Profile No. 2. The "Seinfeld" cell **172** contains two colors, one in each field, indicating that the program "Seinfeld" satisfies the criteria in both Profiles No. 1 and No. 2. Thus left field **174** corresponds to Profile No. 1 selections and right field **176** corresponds to Profile No. 2. To further distinguish the selections of two profiles, the colors may be displayed for each profile on a different pattern, such as a solid or striped background.

Alternatively, the colors for each profile may be displayed with a unique icon. These display formats are merely illustrative examples of suitable visual indicators for easily distinguishing between the display criteria of two or more profiles. These approaches may be used in any suitable combination or any other suitable approach may be used to distinguish the results satisfying different profiles.

The foregoing is merely illustrative of the principles of this invention and various modifications can be made by those skilled in the art without departing from the scope and spirit of the invention.

What is claimed is:

1. An interactive television program guide system implemented on user equipment of a user, comprising:

means for providing an option with the interactive television program guide for a user to select a plurality of preference attributes that are indicative of the user's television programming interests;

means for providing an option for the user to select one of at least several colors for each of the plurality of selected preference attributes; and

means for displaying a list of programming based on the selected preference attributes and the selected colors.

2. The interactive television program guide system defined in claim 1 wherein the means for providing the option for the user to select a plurality of preference attributes comprises means for providing an option of selecting a program series as a preference attribute.

3. The interactive television program guide system defined in claim 1 wherein the means for providing the option for the user to select a plurality of preference attributes comprises means for providing an option of selecting a given airing of a program as a preference attribute.

4. The interactive television program guide system defined in claim 1 further comprising means for allowing the given airing of the program selected as a preference attribute to expire after the program has been aired.

5. The interactive television program guide system defined in claim 1 wherein the means for providing the option for the user to select a plurality of preference attributes comprises means for providing an option of selecting a given actor or actress as a preference attribute.

6. The interactive television program guide system defined in claim 1 wherein the means for providing the option for the user to select a plurality of preference attributes comprises means for providing an option of selecting a genre of programming as a preference attribute.

7. The interactive television program guide system defined in claim 1 wherein the means for providing the option for the user to select a plurality of preference attributes comprises means for providing an option of selecting at least one rating as a preference attribute.

8. The interactive television program guide system defined in claim 1 wherein the means for providing the option for the user to select a plurality of preference attributes comprises means for providing an option of selecting a type of channel as a preference attribute.

9. The interactive television program guide system defined in claim 1 wherein the means for providing the option for the user to select a plurality of preference attributes comprises means for providing an option of selecting a given topic as a preference attribute.

10. The interactive television program guide system defined in claim 1 wherein the means for providing the option for the user to select a plurality of preference attributes comprises means for providing an option of selecting a word in a program description as a preference attribute.

11. The interactive television program guide system defined in claim 1 wherein each one of the selected preference attributes and the respective one of the selected colors are associated as a display criterion, and further comprising:

means for providing an option of creating a preference profile with which the display criteria are associated.

12. The interactive television program guide system defined in claim 11 further comprising:

means for allowing the user to highlight a given program listing,

wherein the means for providing the option of creating a preference profile further comprises means for providing an option of creating the preference profile based on program information of the highlighted program listing.

13. The interactive television program guide system defined in claim 12 wherein the program information comprises a title of the highlighted program listing and the means for providing the option of creating the preference profile based on the program information of the highlighted program listing further comprises means for providing an option of selecting the title of the highlighted program listing as a preference attribute.

14. The interactive television program guide system defined in claim 12 wherein the program information comprises a genre of the highlighted program listing and the means for providing the option of creating the preference profile based on the program information of the highlighted program listing further comprises means for providing an option of selecting the genre of the highlighted program listing as a preference attribute.

15. The interactive television program guide system defined in claim 12 wherein the program information comprises a channel of the highlighted program listing and the means for providing the option of creating the preference profile based on the program information of the highlighted program listing further comprises means for providing an option of selecting the channel of the highlighted program listing as a preference attribute.

16. The interactive television program guide system defined in claim 12 wherein the program information comprises a rating of the highlighted program listing and the means for providing the option of creating the preference profile based on the program information of the highlighted program listing further comprises means for providing an option of selecting the rating of the highlighted program listing as a preference attribute.

17. The interactive television program guide system defined in claim 11 further comprising:

means for allowing the user to tune to a selected program,

wherein the means for providing the option of creating a preference profile further comprises means for creating the preference profile based on the program information of the selected program.

18. The interactive television program guide system defined in claim 17 wherein the program information comprises a title of the selected program and the means for providing the option of creating the preference profile based on the program information of the selected program further comprises means for providing an option of selecting the title of the selected program as a preference attribute.

19. The interactive television program guide system defined in claim 17 wherein the program information comprises a genre of the selected program and the means for providing the option of creating the preference profile based on the program information of the selected program further

comprises means for providing an option of selecting the genre of the selected program as a preference attribute.

20. The interactive television program guide system defined in claim **17** wherein the program information comprises a channel of the selected program and the means for providing the option of creating the preference profile based on the program information of the selected program further comprises means for providing an option of selecting the channel of the selected program as a preference attribute.

21. The interactive television program guide system defined in claim **17** wherein the program information comprises a rating of the selected program and the means for providing the option of creating the preference profile based on the program information of the selected program further comprises means for providing an option of selecting the rating of the selected program as a preference attribute.

22. The interactive television program guide system defined in claim **1** further comprising means for providing a profiles display with which the user may modify a preference profile with which the selected preference attributes and the selected colors are associated.

23. The interactive television program guide system defined in claim **1** further comprising means for providing an option of deselecting at least one of the selected preference attributes.

24. The interactive television program guide system defined in claim **11** wherein there are multiple profiles, the system further comprising means for providing an option of selecting which of the profiles to make active.

25. The interactive television program guide system defined in claim **24** wherein at least two of the preference profiles are active and wherein the means for displaying displays the list of programming based on the selected preference attributes and selected colors in the two preference profiles, the system further comprising:

means for indicating which of the programs in the list of programming satisfy which of the preference profiles.

26. The interactive television program guide system defined in claim **25** wherein the means for indicating comprises means for displaying the associated colors that satisfy one of the two profiles in one location in the list and the associated colors that satisfy the other of the two profiles in another location in the list.

27. The interactive television program guide system defined in claim **26** wherein the means for indicating comprises means for displaying the associated colors that satisfy one of the two profiles using one pattern and the associated colors that satisfy the other of the two profiles using another pattern.

28. The interactive television program guide system defined in claim **26** wherein the means for indicating comprises means for displaying the associated colors that satisfy one of the two profiles using one icon and the programs that satisfy the other of the two profiles using another icon.

29. The interactive television program guide system defined in claim **24** wherein the means for displaying the list of programming based on the selected preference attributes and selected colors further comprises means for displaying the list of programming based on the selected preference attributes and selected colors associated with the multiple profiles.

30. The interactive television program guide system defined in claim **24** further comprising means for providing an option for creating a master preference profile.

31. The interactive television program guide system defined in claim **30** wherein the means for displaying a list of programming based on the selected preference attributes and the selected colors further comprises means for displaying the list of programs based on the selected preference attributes and the selected colors of the master profile.

32. The interactive television program guide system defined in claim **1**, wherein the user equipment is user personal computer equipment.

33. The interactive television program guide system defined in claim **1**, wherein the user equipment is user television equipment.

34. A interactive television program guide system implemented on user equipment of a user, comprising:

means for providing an option for a user to select a plurality of preference attributes that are indicative of the user's television programming interests;

means for providing an option for the user to associate one of at least several colors with each of the plurality of selected preference attributes; and

means for displaying a list of programming such that a program having at least one of the selected preference attributes is displayed in the associated color of that preference attribute.

35. The interactive television program guide system defined in claim **34** wherein the means for displaying the list of programming further comprises means for providing an option of specifying a maximum number of associated colors for any one of the programs.

36. The interactive television program guide system defined in claim **35** further comprising means for providing an option of specifying a sort order for each of the selected preference attributes.

37. The interactive television program guide system defined in claim **36** wherein the means for providing an option of specifying a maximum number of associated colors further comprises means for displaying the associated colors according to the sort order for each of the selected preference attributes.

38. The interactive television program guide system defined in claim **34**, wherein the user equipment is user personal computer equipment.

39. The interactive television program guide system defined in claim **34**, wherein the user equipment is user television equipment.

40. A method for using an interactive television program guide system in which an interactive television program guide is implemented on user equipment of a user, comprising:

providing an option for a user to select a plurality of preference attributes that are indicative of the user's television programming interests;

providing an option for the user to select one of at least several colors for each of the plurality of selected preference attributes; and

displaying a list of programming based on the selected preference attributes and the selected colors.

41. The method defined in claim **40** wherein the step of providing the option for the user to select a plurality of preference attributes further comprises providing an option of selecting a program series as a preference attribute.

42. The method defined in claim **40** wherein the step of providing the option for the user to select a plurality of preference attributes further comprises providing an option of selecting a given airing of a program as a preference attribute.

43. The method defined in claim **40** further comprising:

allowing the given airing of the program selected as a preference attribute to expire after the program has been aired.

44. The method defined in claim **40** wherein the step of providing the option for the user to select a plurality of preference attributes comprises providing an option of selecting a given actor or actress as a preference attribute.

45. The method defined in claim **40** wherein the step of providing the option for the user to select a plurality of preference attributes comprises providing an option of selecting a genre of programming as a preference attribute.

46. The method defined in claim **40** wherein the step of providing the option for the user to select a plurality of preference attributes comprises providing an option of selecting at least one rating as a preference attribute.

47. The method defined in claim **40** wherein the step of providing the option for the user to select a plurality of preference attributes comprises providing an option of selecting a type of channel as a preference attribute.

48. The method defined in claim **40** wherein the step of providing the option for the user to select a plurality of preference attributes comprises providing an option of selecting a given topic as a preference attribute.

49. The method defined in claim **40** wherein the step of providing the option for the user to select a plurality of preference attributes comprises providing an option of selecting a word in a program description as a preference attribute.

50. The method defined in claim **40** wherein each one of the selected preference attributes and the respective one of the selected colors are associated as a display criterion, and further comprising:

providing an option of creating a preference profile with which the display criteria are associated.

51. The method defined in claim **50** further comprising:

allowing the user to highlight a given program listing,

wherein the step of providing an option of creating a preference profile further comprises providing an option of creating the preference profile based on program information of the highlighted program listing.

52. The method defined in claim **51** wherein the program information comprises a title of the highlighted program listing and the step of providing an option of creating the preference profile based on the program information of the highlighted program listing comprises providing an option of selecting the title of the highlighted program listing as a preference attribute.

53. The method defined in claim **51** wherein the program information comprises a genre of the highlighted program listing and the step of providing the option of creating the preference profile based on the program information of the highlighted program listing comprises providing an option of selecting the genre of the highlighted program listing as a preference attribute.

54. The method defined in claim **51** wherein the program information comprises a channel of the highlighted program listing and the step of providing an option of creating the preference profile based on the program information of the highlighted program listing comprises providing an option of selecting the channel of the highlighted program listing as a preference attribute.

55. The method defined in claim **51** wherein the program information comprises a rating of the highlighted program listing and the step of providing an option of creating the preference profile based on the program information of the highlighted program listing further comprises providing an option of selecting the rating of the highlighted program listing as a preference attribute.

56. The method defined in claim **50** further comprising:

allowing the user to tune to a selected program,

wherein the step of providing the option of creating the preference profile further comprises creating the preference profile based on the program information of the selected program.

57. The method defined in claim **56** wherein the program information comprises a title of the selected program and the step of providing the option of creating the preference profile based on the program information of the selected program further comprises providing an option of selecting the title of the selected program as a preference attribute.

58. The method defined in claim **56** wherein the program information comprises a genre of the selected program and the step of providing an option of creating the preference profile based on the program information of the selected program further comprises providing an option of selecting the genre of the selected program as a preference attribute.

59. The method defined in claim **56** wherein the program information comprises a channel of the selected program and the step of providing an option of creating the preference profile based on the program information of the selected program further comprises providing an option of selecting the channel of the selected program as a preference attribute.

60. The method defined in claim **56** wherein the program information comprises a rating of the selected program and the step of providing an option of creating the preference profile based on the program information of the selected program further comprises providing an option of selecting the rating of the selected program as a preference attribute.

61. The method defined in claim **40** further comprising:

providing a profiles display with which the user may modify a preference profile with which the selected preference attributes and the selected colors are associated.

62. The method defined in claim **40** further comprising:

providing an option of deselecting at least one of the selected preference attributes.

63. The method defined in claim **50** wherein there are multiple profiles, the system further comprising:

providing an option of selecting which of the profiles to make active.

64. The method defined in claim **63** wherein at least two of the preference profiles are active and wherein the step of displaying comprises displaying the list of programming based on the selected preference attributes and selected colors in the two preference profiles, the system further comprising:

indicating which of the programs in the list of programming satisfy which of the preference profiles.

65. The method defined in claim **64** wherein the step of indicating comprises displaying the associated colors that satisfy one of the two profiles in one location in the list and the associated colors that satisfy the other of the two profiles in another location in the list.

66. The method defined in claim **65** wherein the step of indicating comprises displaying the associated colors that satisfy one of the two profiles using one pattern and the associated colors that satisfy the other of the two profiles using another pattern.

67. The method defined in claim **65** wherein the step of indicating comprises displaying the associated colors that satisfy one of the two profiles using one icon and the programs that satisfy the other of the two profiles using another icon.

68. The method defined in claim **63** wherein the step of displaying the list of programming based on the selected

preference attributes and selected colors further comprises displaying the list of programming based on the selected preference attributes and selected colors associated with the multiple profiles.

69. The method defined in claim **63** further comprising:

providing an option for creating a master preference profile.

70. The method defined in claim **69** wherein the step of displaying a list of programming based on the selected preference attributes and the selected colors comprises displaying the list of programs based on the selected preference attributes and the selected colors of the master profile.

71. A method for using an interactive television program guide system in which an interactive television program guide is implemented on user equipment of a user, comprising:

providing an option for a user to select a plurality of preference attributes that are indicative of the user's television programming interests;

providing an option for the user to associate one of at least several colors with each of the plurality of selected preference attributes; and

displaying a list of programming such that a program having at least one of the selected preference attributes is displayed in the associated color of that preference attribute.

72. The method defined in claim **71** wherein the step of displaying the list of programming comprises providing an option of specifying a maximum number of associated colors for any one of the programs.

73. The method defined in claim **72**, further comprising:

providing an option of specifying a sort order for each of the selected preference attributes.

74. The method defined in claim **73** wherein the step of providing an option of specifying the maximum number of associated colors further comprises displaying the associated colors according to the sort order for each of the selected preference attributes.

* * * * *

US006268849B1

(12) **United States Patent**
Boyer et al.

(10) **Patent No.: US 6,268,849 B1**
(45) **Date of Patent: *Jul. 31, 2001**

(54) **INTERNET TELEVISION PROGRAM GUIDE SYSTEM WITH EMBEDDED REAL-TIME DATA**

(75) Inventors: **Franklin E. Boyer**, Cleveland; **Timothy B. Demers**, Tulsa, both of OK (US)

(73) Assignee: **United Video Properties, Inc.**, Tulsa, OK (US)

(*) Notice: This patent issued on a continued prosecution application filed under 37 CFR 1.53(d), and is subject to the twenty year patent term provisions of 35 U.S.C. 154(a)(2).

Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **09/107,012**

(22) Filed: **Jun. 30, 1998**

(51) **Int. Cl.**[7] **G06F 3/00**; G06F 15/16; H04N 7/14; H04H 1/02

(52) **U.S. Cl.** **345/327**; 348/12; 348/906; 455/5.1; 709/217

(58) **Field of Search** 345/327; 348/10, 348/12, 13, 906; 455/6.2, 6.3, 5.1, 4.2; 395/200.47, 200.48, 200.49; 709/217–219; H04N 7/173

(56) **References Cited**

U.S. PATENT DOCUMENTS

5,589,892	12/1996	Knee et al.	348/731
5,596,373 *	1/1997	White et al.	348/569
5,629,733 *	5/1997	Youman et al.	348/7

(List continued on next page.)

FOREIGN PATENT DOCUMENTS

0 723 369 A1	7/1996	(EP)	H04N7/00
WO 96/27989	9/1996	(WO)	H04N/7/173
WO 96/38962	12/1996	(WO)	H04L/29/06
WO 97/42763 *	11/1997	(WO)	H04N/7/173

OTHER PUBLICATIONS

The InfoBeat program guide website of InfoBeat, Inc. This website is located at www.infobeat.com (as printed from the Internet on Sep. 1, 1998).

The television program guide website of TV Guide Entertainment Network. This website is located at www.tvguide-.com (as printed from the Internet on Sep. 1, 1998).

The television program guide website of Gist Communications, Inc. of New York, New York. This website is located at www.gist.com (as printed from the Internet on Sep. 1, 1998).

The click TV television program guide website of TVData of Queensbury, New York. This website is located at www.clicktv.com (as printed from the Internet on Sep. 1, 1998).

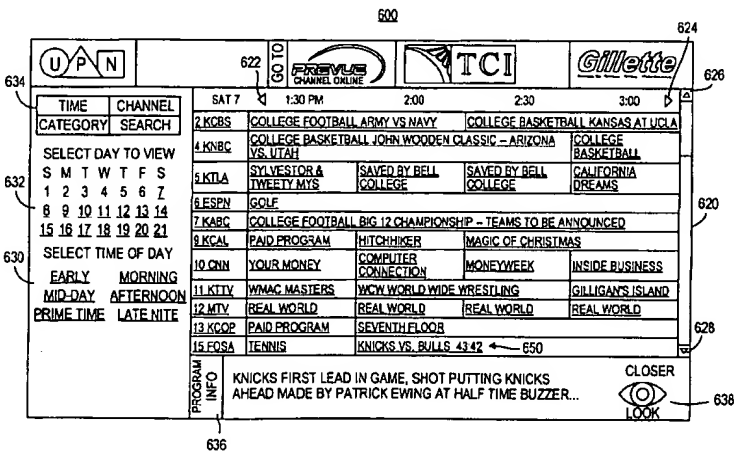
(List continued on next page.)

Primary Examiner—John W. Miller
(74) *Attorney, Agent, or Firm*—Fish & Neave; Brajesh Mohan

(57) **ABSTRACT**

An Internet television program guide system is provided that allows a user at a multimedia system to access television program listings containing embedded real-time data over an Internet communications link. The television program listing may be for a sporting event that is currently being broadcast and the real-time data may be the current score of the event, the current weather where the event is taking place, or any other suitable real-time information on the event. The real-time data may be presented in the form of video stills, video clips, textual information, audio clips, or suitable combinations of such media. The user can perform database searches on the program guide listings to search for a desired program. If desired, the user can obtain additional information on a selected program by accessing an associated web page.

64 Claims, 14 Drawing Sheets



U.S. PATENT DOCUMENTS

5,692,214	11/1997	Levine	395/833
5,721,827 *	2/1998	Logan et al.	395/200.47
5,790,202 *	8/1998	Kummer et al.	348/553
5,828,839 *	10/1998	Moncreiff	395/200.34
5,828,945 *	10/1998	Klosterman	455/4.2
5,850,218 *	12/1998	LaJoie et al.	345/327
6,002,394 *	12/1999	Schein et al.	345/327
6,052,145	4/2000	Macrae et al.	348/10

OTHER PUBLICATIONS

"UVSG Teams With Microsoft On Internet Information Server," press release of United Video Satellite Group (Feb. 22, 1996).

"UVSG Offers System–Specific Web Site Development for OPS," press release of United Video Satellite Group (Apr. 12, 1996).

"Set–Top Box Control Software: A Key Component in Digital Video," in *Philips Journal Of Research,* Rath et al. (1996).

* cited by examiner

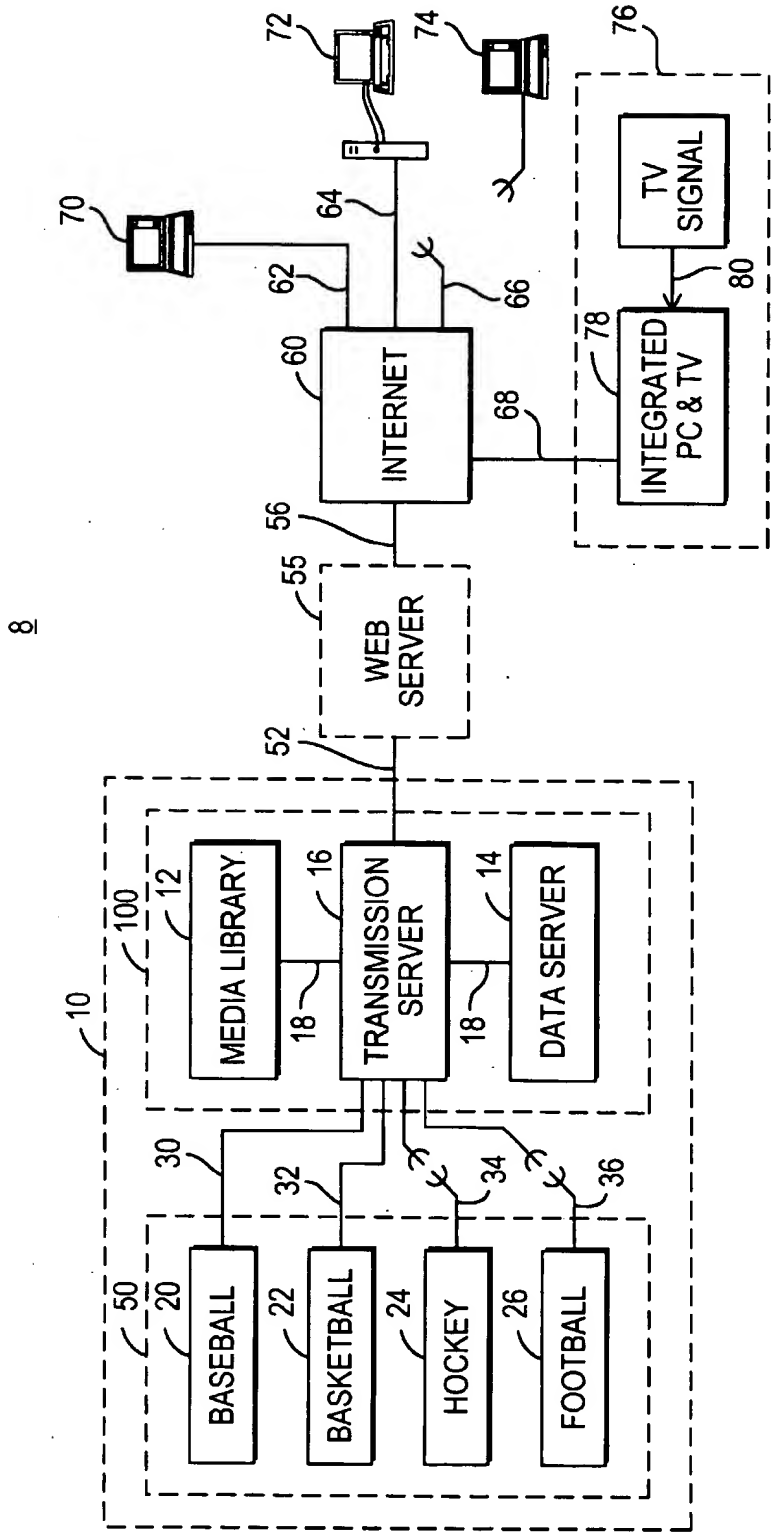

8
10
12
MEDIA LIBRARY
14
DATA SERVER
16
TRANSMISSION SERVER
18
18
20
BASEBALL
22
BASKETBALL
24
HOCKEY
26
FOOTBALL
30
32
34
36
50
52
55
WEB SERVER
56
60
INTERNET
62
64
66
68
70
72
74
76
78
INTEGRATED PC & TV
80
TV SIGNAL
100

FIG. 1

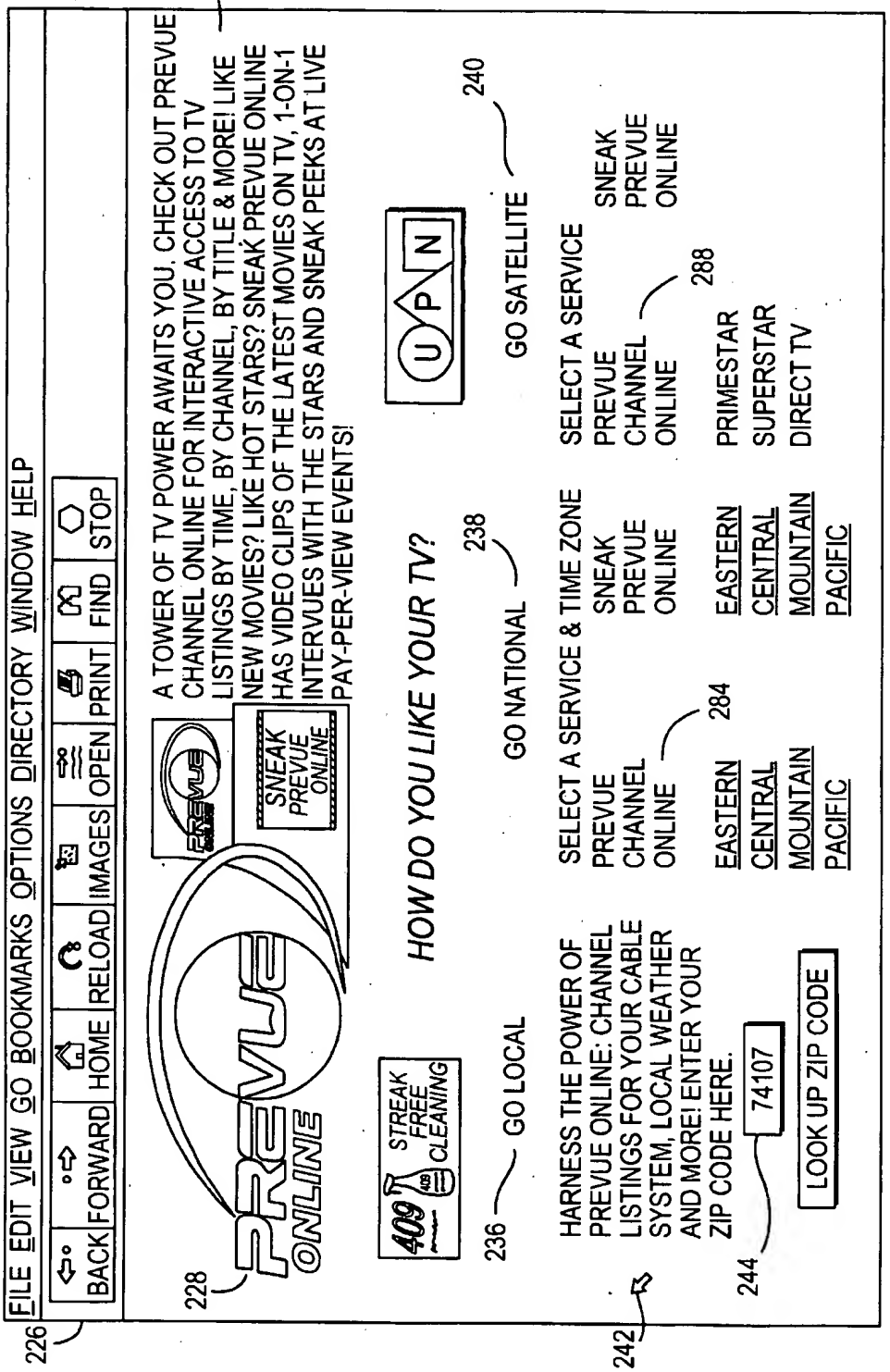

200
FILE EDIT VIEW GO BOOKMARKS OPTIONS DIRECTORY WINDOW HELP
BACK FORWARD HOME RELOAD IMAGES OPEN PRINT FIND STOP
226
228
PREVUE ONLINE
SNEAK PREVUE ONLINE
A TOWER OF TV POWER AWAITS YOU. CHECK OUT PREVUE CHANNEL ONLINE FOR INTERACTIVE ACCESS TO TV LISTINGS BY TIME, BY CHANNEL, BY TITLE & MORE! LIKE NEW MOVIES? LIKE HOT STARS? SNEAK PREVUE ONLINE HAS VIDEO CLIPS OF THE LATEST MOVIES ON TV, 1-ON-1 INTERVUES WITH THE STARS AND SNEAK PEEKS AT LIVE PAY-PER-VIEW EVENTS!
230
409 STREAK FREE CLEANING
HOW DO YOU LIKE YOUR TV?
UPN
240
236 GO LOCAL
GO NATIONAL 238
GO SATELLITE
HARNESS THE POWER OF PREVUE ONLINE: CHANNEL LISTINGS FOR YOUR CABLE SYSTEM, LOCAL WEATHER AND MORE! ENTER YOUR ZIP CODE HERE.
74107
LOOK UP ZIP CODE
244
242
SELECT A SERVICE & TIME ZONE
PREVUE CHANNEL ONLINE
284
EASTERN
CENTRAL
MOUNTAIN
PACIFIC
SNEAK PREVUE ONLINE
SELECT A SERVICE
PREVUE CHANNEL ONLINE
288
PRIMESTAR
SUPERSTAR
DIRECT TV
SNEAK PREVUE ONLINE

FIG. 2

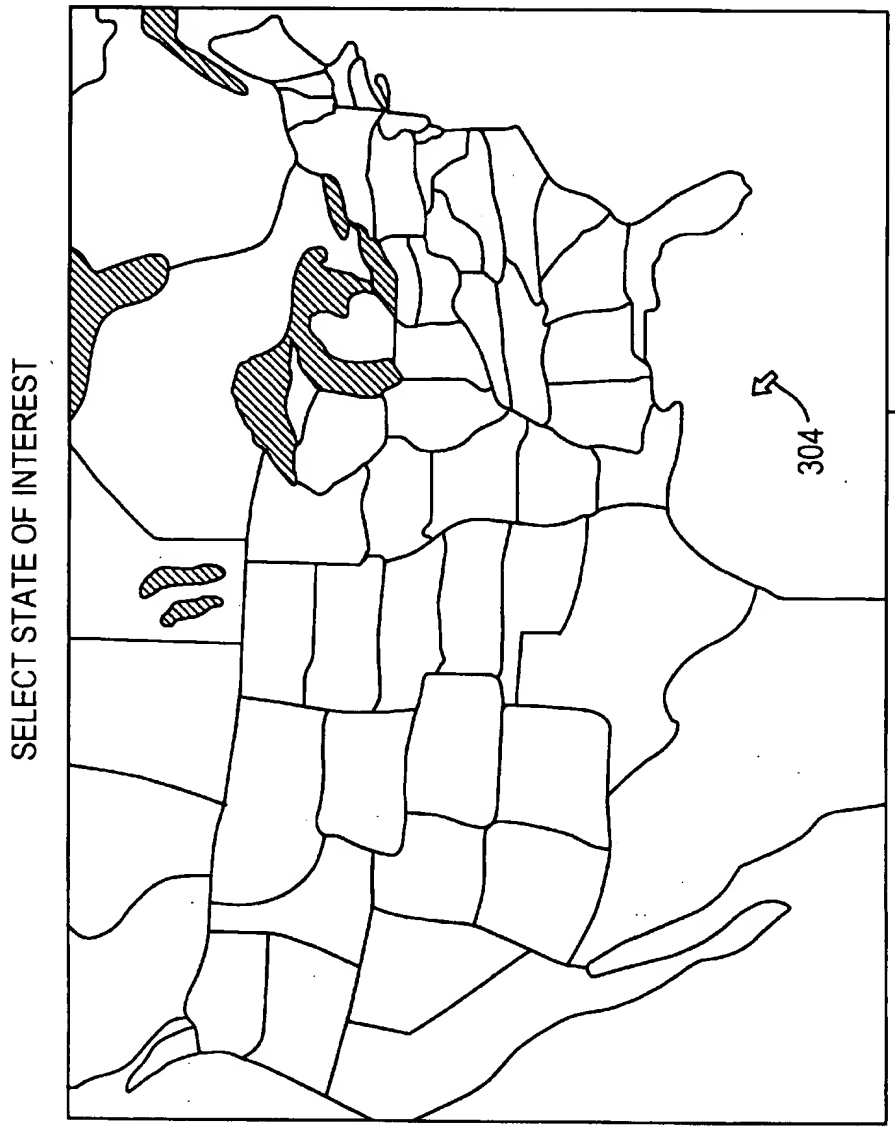


FIG. 3

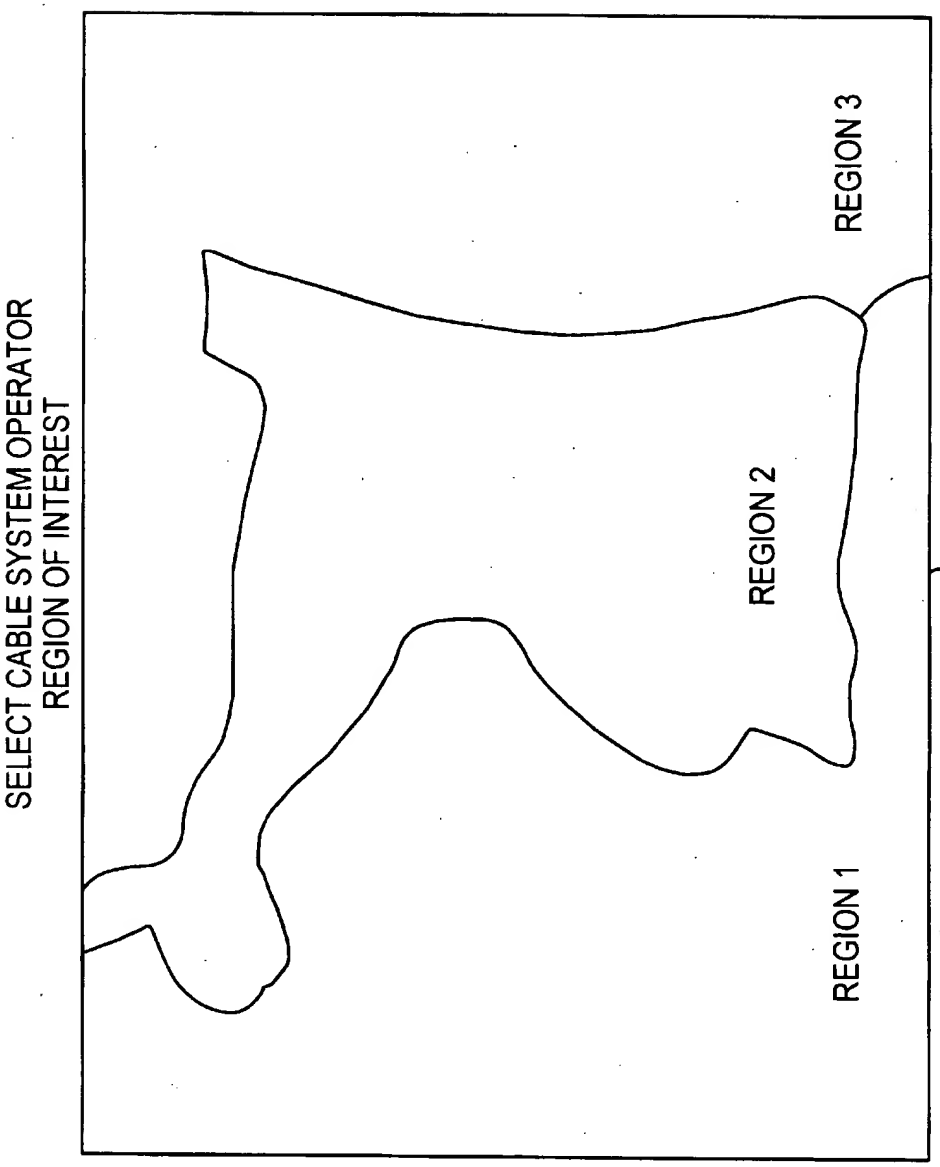

SELECT CABLE SYSTEM OPERATOR
REGION OF INTEREST
REGION 3
REGION 2
REGION 1
306

FIG. 4

FIG. 5

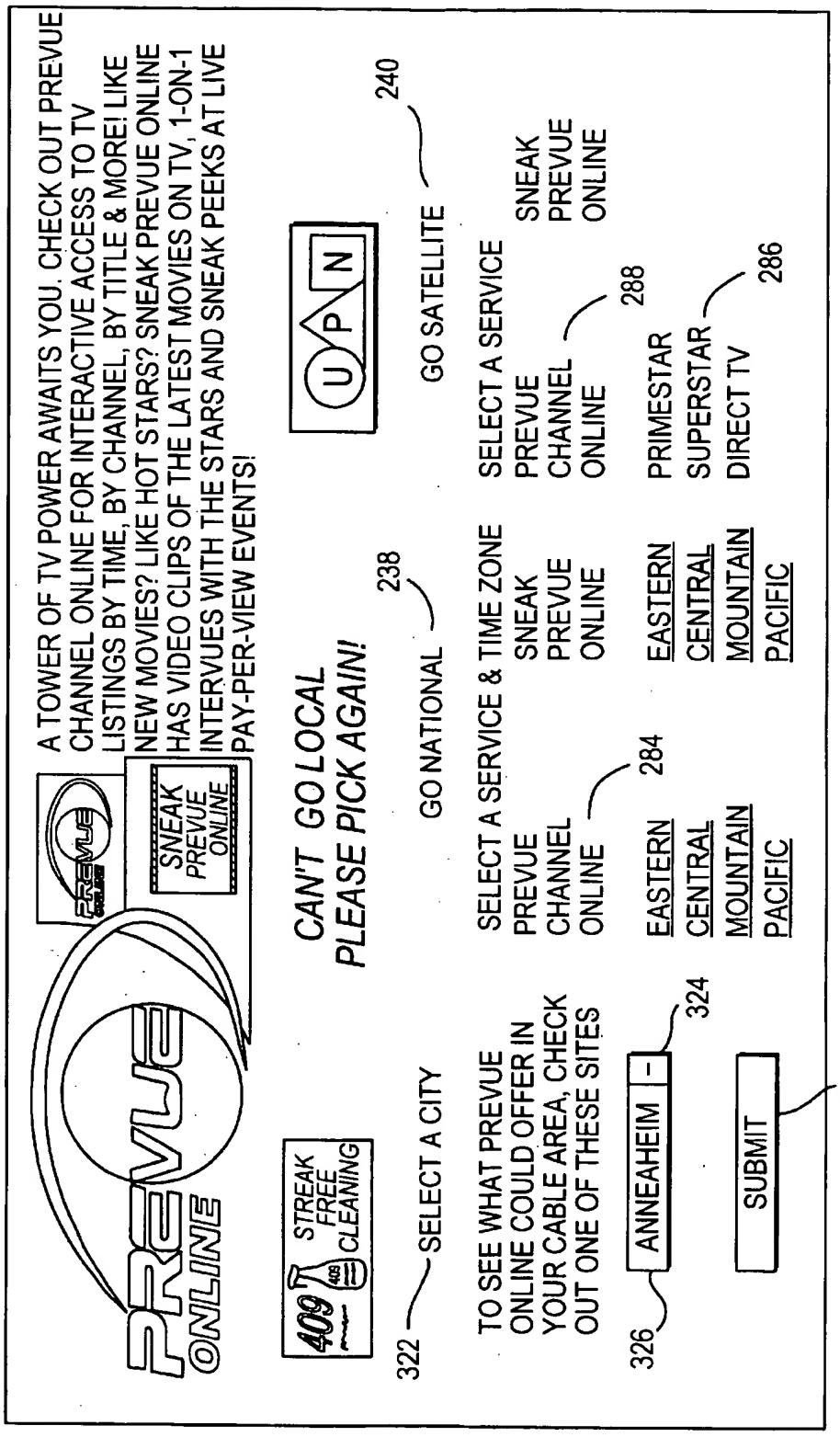
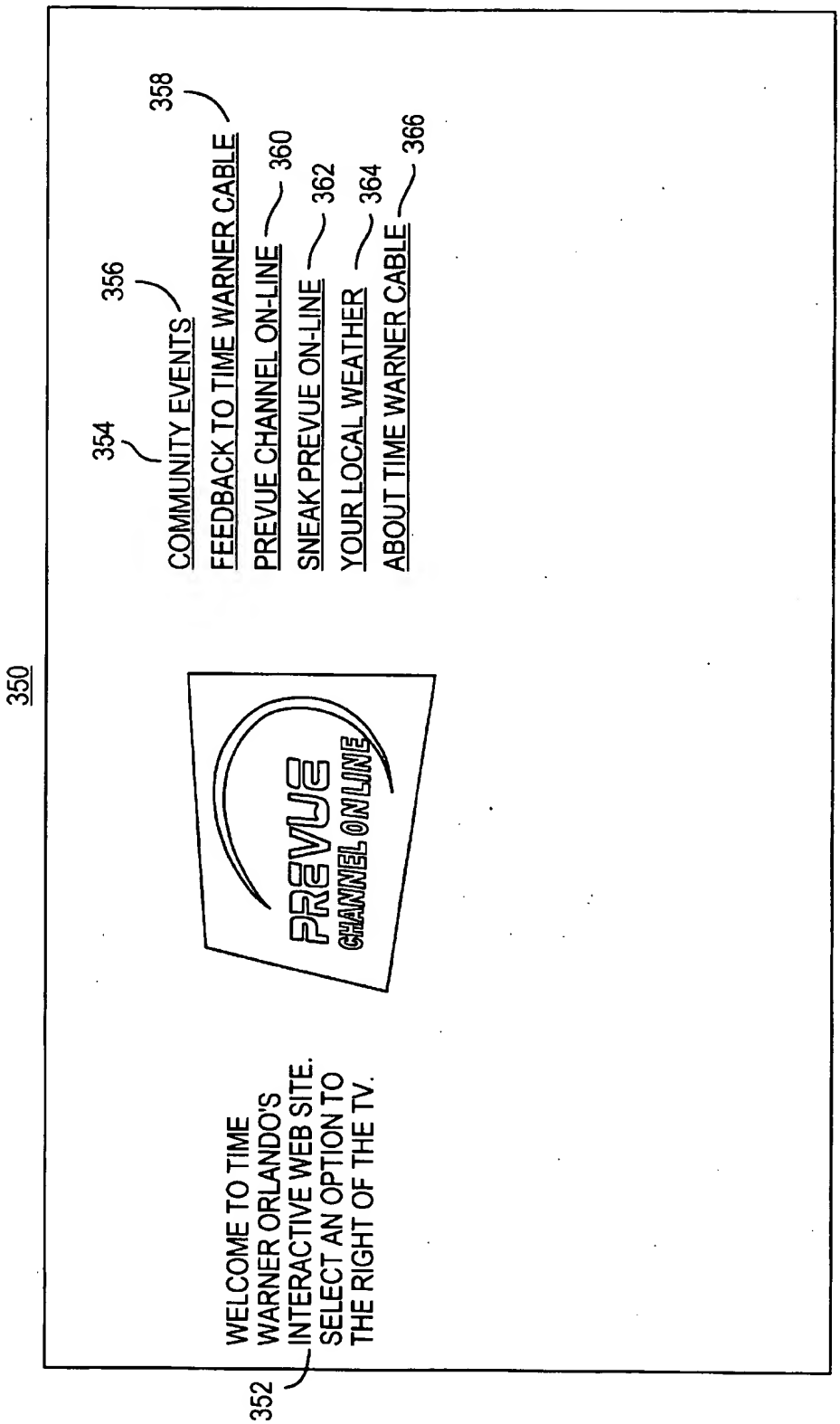

320
PREVUE ONLINE
SNEAK PREVUE ONLINE
A TOWER OF TV POWER AWAITS YOU. CHECK OUT PREVUE CHANNEL ONLINE FOR INTERACTIVE ACCESS TO TV LISTINGS BY TIME, BY CHANNEL, BY TITLE & MORE! LIKE NEW MOVIES? LIKE HOT STARS? SNEAK PREVUE ONLINE HAS VIDEO CLIPS OF THE LATEST MOVIES ON TV, 1-ON-1 INTERVIEWS WITH THE STARS AND SNEAK PEEKS AT LIVE PAY-PER-VIEW EVENTS!
CAN'T GO LOCAL
PLEASE PICK AGAIN!
238
240
UPN
GO NATIONAL
GO SATELLITE
409 STREAK FREE CLEANING
322
SELECT A CITY
SELECT A SERVICE & TIME ZONE
SELECT A SERVICE
TO SEE WHAT PREVUE ONLINE COULD OFFER IN YOUR CABLE AREA, CHECK OUT ONE OF THESE SITES
PREVUE CHANNEL ONLINE
284
SNEAK PREVUE ONLINE
PREVUE CHANNEL ONLINE
288
SNEAK PREVUE ONLINE
326
ANNEAHEIM
324
EASTERN
CENTRAL
MOUNTAIN
PACIFIC
PRIMESTAR
SUPERSTAR
DIRECT TV
286
SUBMIT
330

FIG. 6


350
352
WELCOME TO TIME WARNER ORLANDO'S INTERACTIVE WEB SITE. SELECT AN OPTION TO THE RIGHT OF THE TV.
PREVUE CHANNEL ON LINE
354
COMMUNITY EVENTS
356
FEEDBACK TO TIME WARNER CABLE
358
PREVUE CHANNEL ON-LINE
360
SNEAK PREVUE ON-LINE
362
YOUR LOCAL WEATHER
364
ABOUT TIME WARNER CABLE
366

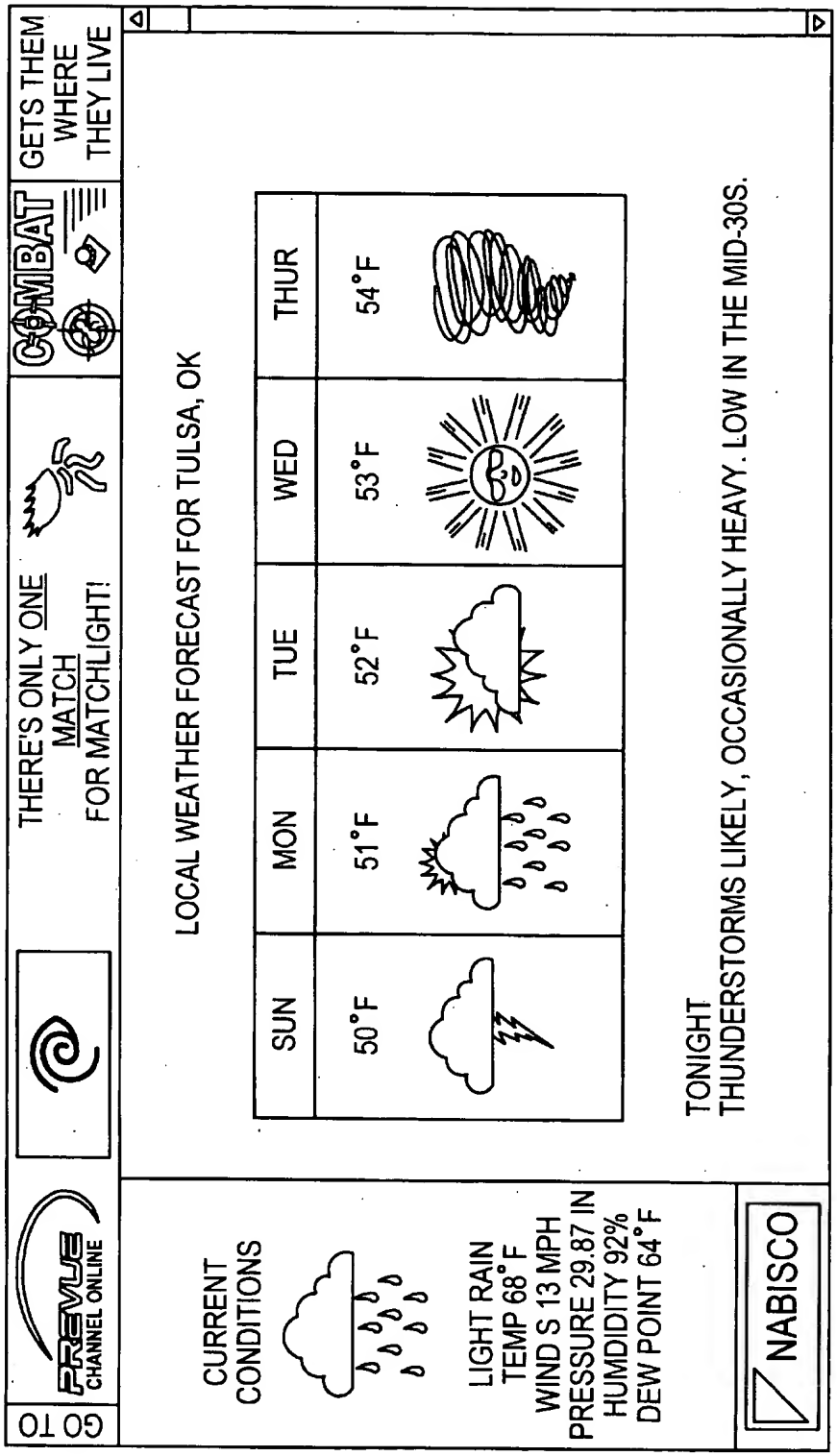

400
GO TO
PREVUE CHANNEL ONLINE
THERE'S ONLY ONE MATCH FOR MATCHLIGHT!
COMBAT
GETS THEM WHERE THEY LIVE
LOCAL WEATHER FORECAST FOR TULSA, OK
SUN
MON
TUE
WED
THUR
50°F
51°F
52°F
53°F
54°F
CURRENT CONDITIONS
LIGHT RAIN
TEMP 68°F
WIND S 13 MPH
PRESSURE 29.87 IN
HUMIDITY 92%
DEW POINT 64°F
TONIGHT
THUNDERSTORMS LIKELY, OCCASIONALLY HEAVY. LOW IN THE MID-30S.
NABISCO

FIG. 7

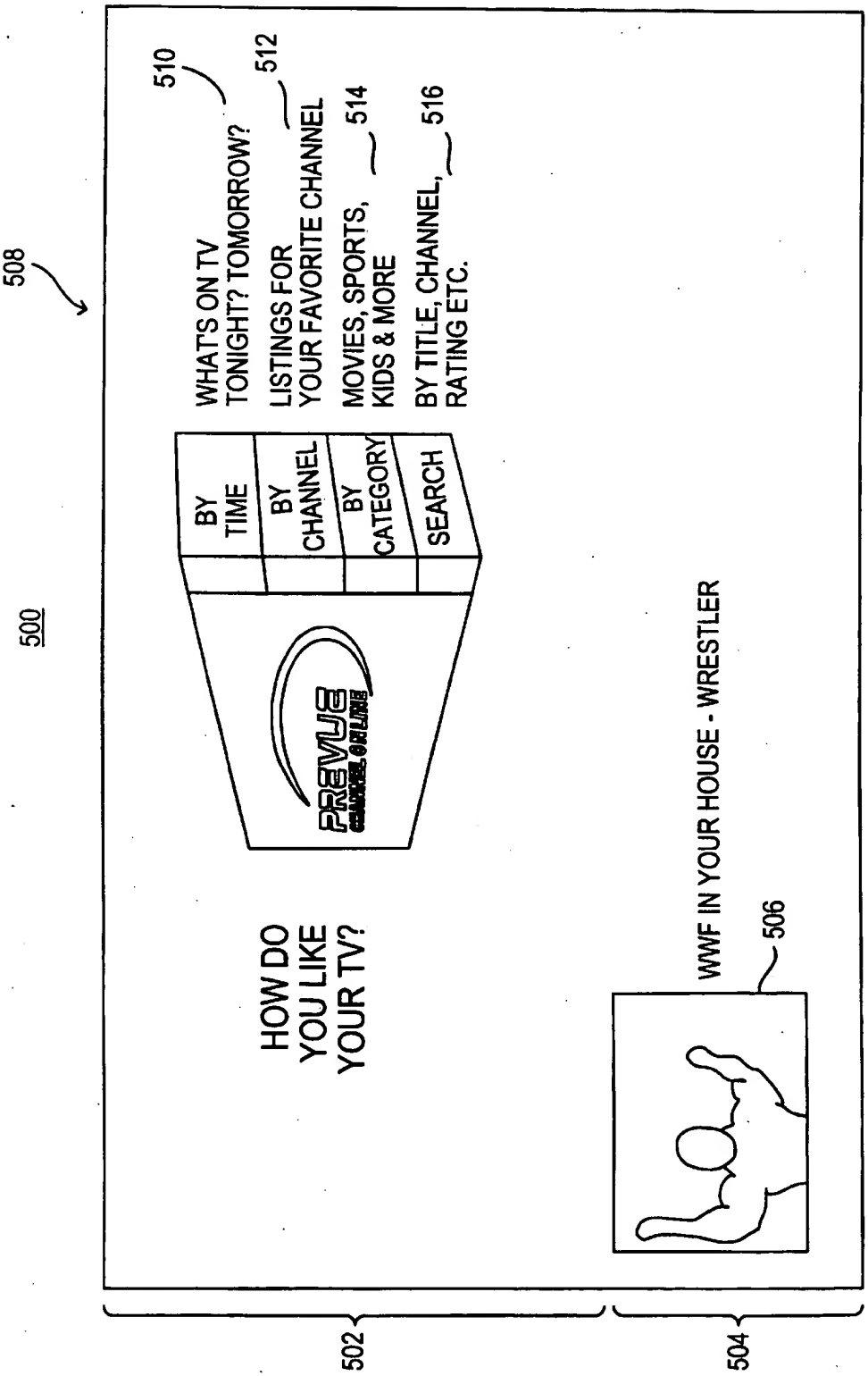

500
502
504
506
508
510
512
514
516
HOW DO YOU LIKE YOUR TV?
WWF IN YOUR HOUSE - WRESTLER
BY TIME
BY CHANNEL
BY CATEGORY
SEARCH
WHAT'S ON TV TONIGHT? TOMORROW?
LISTINGS FOR YOUR FAVORITE CHANNEL
MOVIES, SPORTS, KIDS & MORE
BY TITLE, CHANNEL, RATING ETC.
PREVUE

FIG. 8

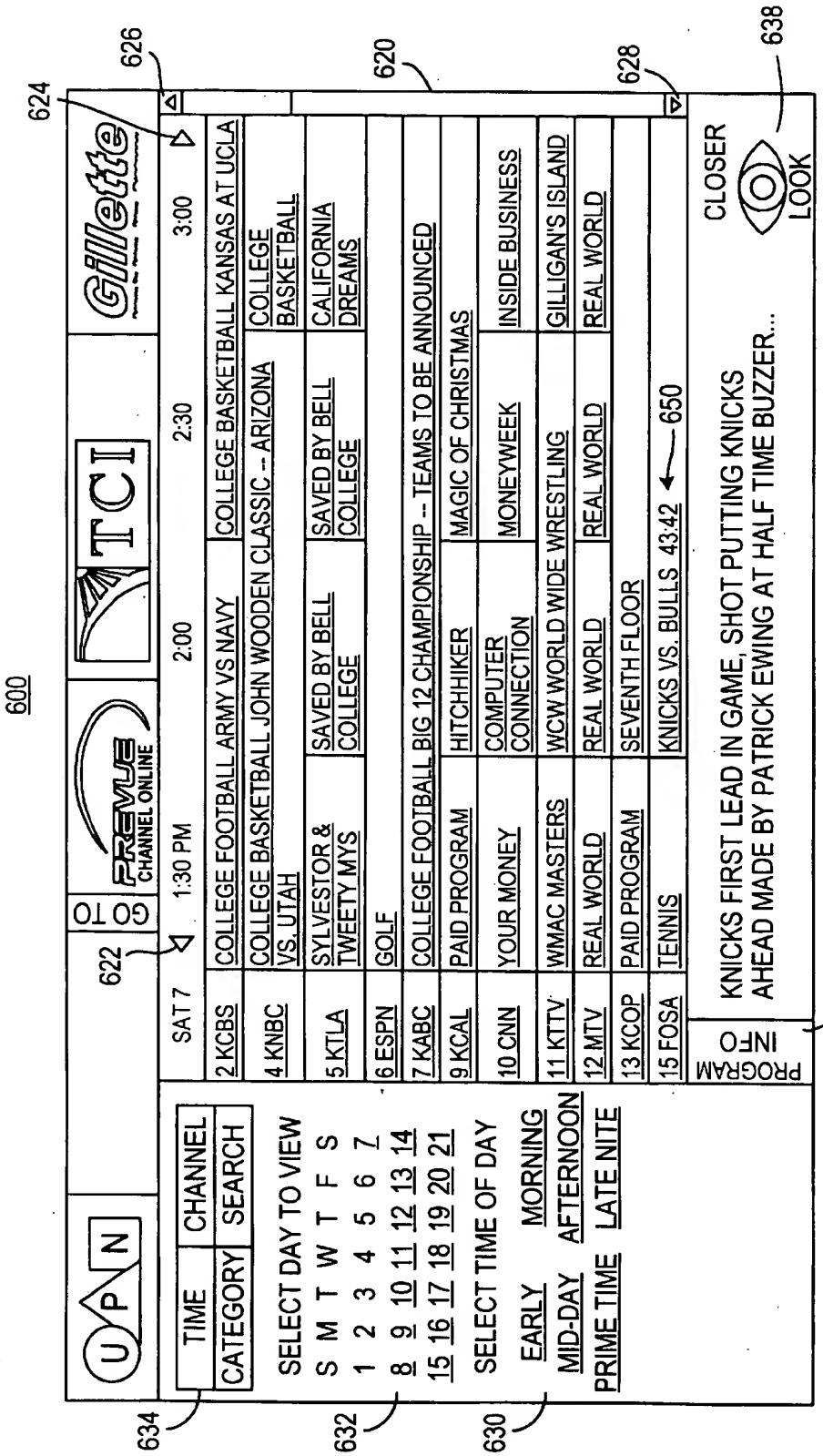

600
624
626
620
628
638
622
634
632
630
636
650
UPN
GO TO
PREVUE CHANNEL ONLINE
TCI
Gillette
SAT 7
1:30 PM
2:00
2:30
3:00
TIME
CHANNEL
CATEGORY
SEARCH
SELECT DAY TO VIEW
S M T W T F S
1 2 3 4 5 6 7
8 9 10 11 12 13 14
15 16 17 18 19 20 21
SELECT TIME OF DAY
EARLY MORNING
MID-DAY AFTERNOON
PRIME TIME LATE NITE
2 KCBS
COLLEGE FOOTBALL ARMY VS NAVY
COLLEGE BASKETBALL KANSAS AT UCLA
4 KNBC
COLLEGE BASKETBALL JOHN WOODEN CLASSIC -- ARIZONA VS. UTAH
COLLEGE BASKETBALL
5 KTLA
SYLVESTOR & TWEETY MYS
SAVED BY BELL COLLEGE
SAVED BY BELL COLLEGE
CALIFORNIA DREAMS
6 ESPN
GOLF
7 KABC
COLLEGE FOOTBALL BIG 12 CHAMPIONSHIP -- TEAMS TO BE ANNOUNCED
9 KCAL
PAID PROGRAM
HITCHHIKER
MAGIC OF CHRISTMAS
10 CNN
YOUR MONEY
COMPUTER CONNECTION
MONEYWEEK
INSIDE BUSINESS
11 KTTV
WMAC MASTERS
WCW WORLD WIDE WRESTLING
GILLIGAN'S ISLAND
12 MTV
REAL WORLD
REAL WORLD
REAL WORLD
REAL WORLD
13 KCOP
PAID PROGRAM
SEVENTH FLOOR
15 FOSA
TENNIS
KNICKS VS. BULLS 43:42
PROGRAM INFO
KNICKS FIRST LEAD IN GAME, SHOT PUTTING KNICKS AHEAD MADE BY PATRICK EWING AT HALF TIME BUZZER...
CLOSER LOOK

FIG. 9

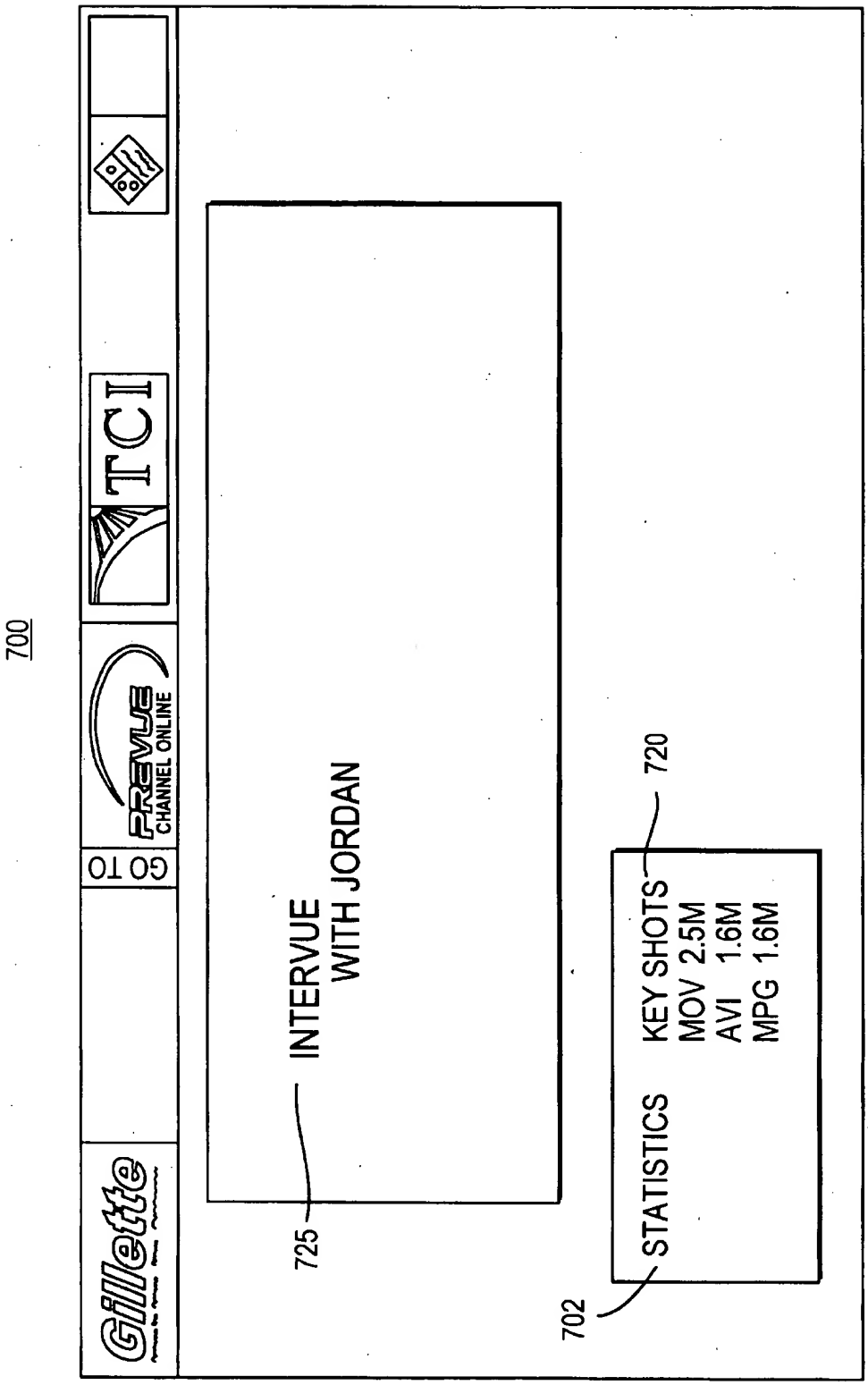

700
Gillette
GO TO
PREVUE CHANNEL ONLINE
TCI
INTERVUE
WITH JORDAN
725
STATISTICS
KEY SHOTS
MOV 2.5M
AVI 1.6M
MPG 1.6M
720
702

FIG. 10

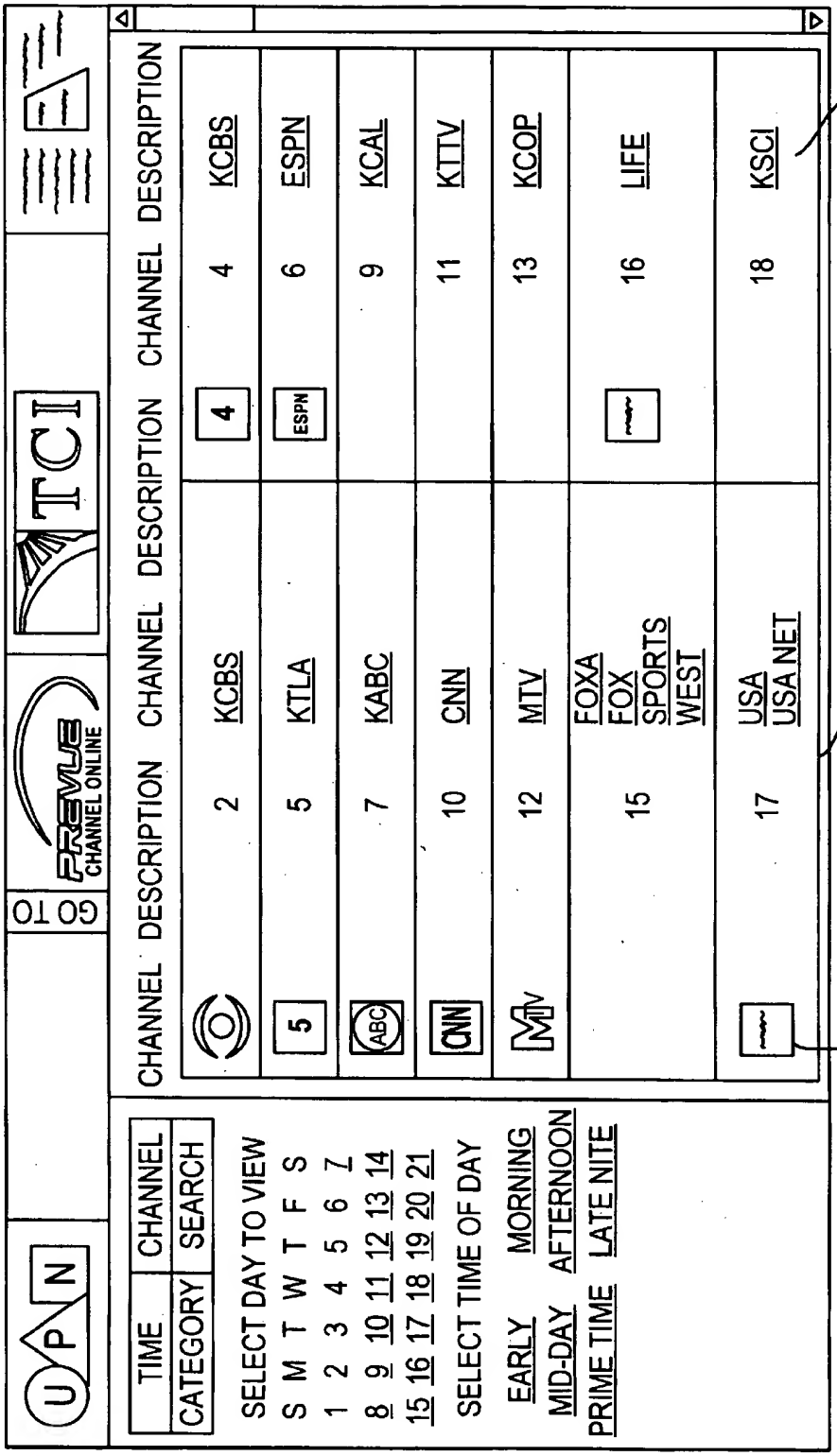

760
UPN
GO TO
PREVUE CHANNEL ONLINE
TCI
TIME
CHANNEL
CATEGORY
SEARCH
SELECT DAY TO VIEW
S M T W T F S
1 2 3 4 5 6 7
8 9 10 11 12 13 14
15 16 17 18 19 20 21
SELECT TIME OF DAY
EARLY MORNING
MID-DAY AFTERNOON
PRIME TIME LATE NITE
CHANNEL DESCRIPTION CHANNEL DESCRIPTION CHANNEL DESCRIPTION
2 KCBS 4 4 KCBS
5 KTLA 6 ESPN
7 KABC 9 KCAL
10 CNN 11 KTTV
12 MTV 13 KCOP
15 FOXA FOX SPORTS WEST 16 LIFE
17 USA USA NET 18 KSCI
762
764
766

FIG. 11

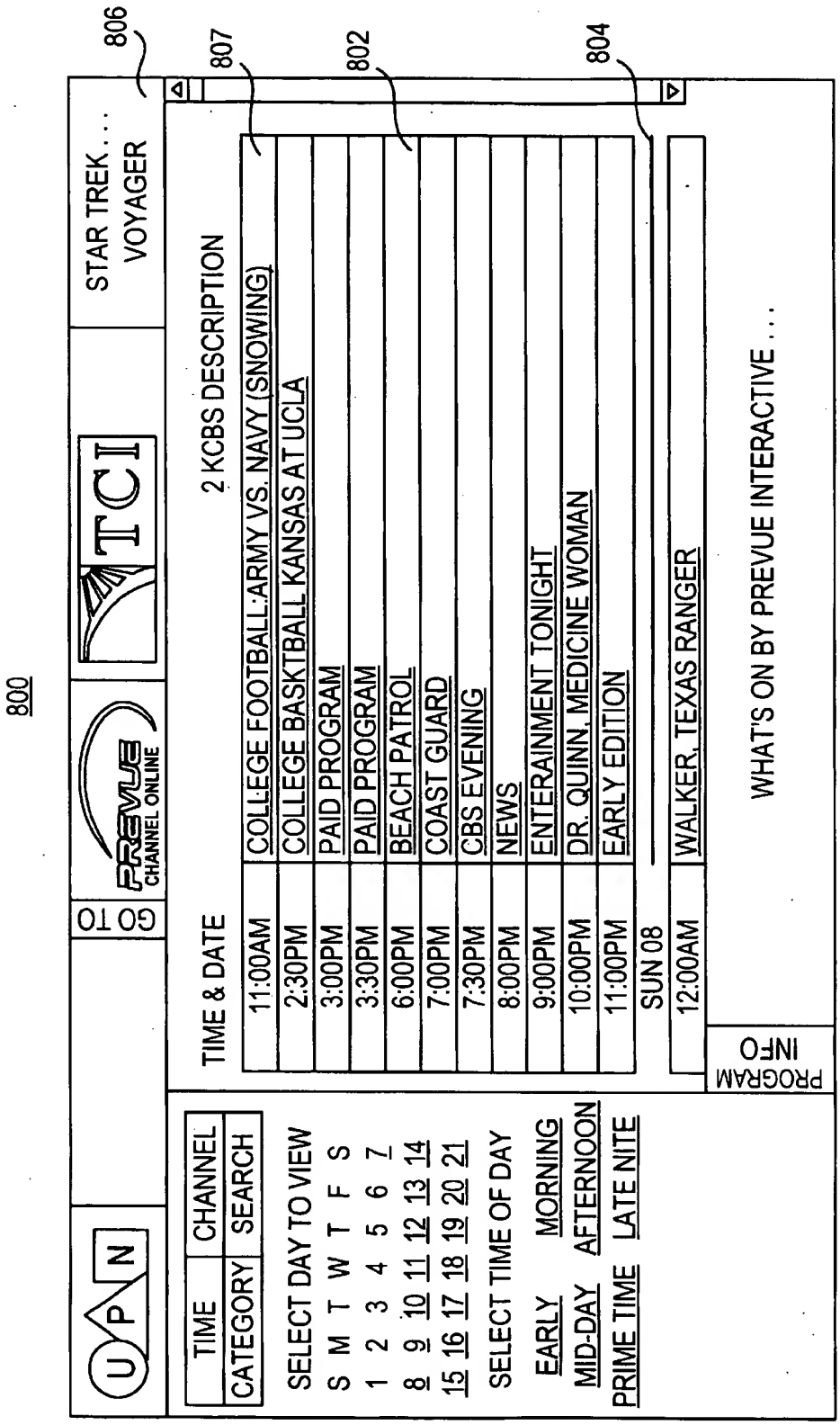

800
806
807
802
804
STAR TREK.... VOYAGER
TCI
PREVUE CHANNEL ONLINE
GO TO
UPN
2 KCBS DESCRIPTION
TIME & DATE
11:00AM COLLEGE FOOTBALL:ARMY VS. NAVY (SNOWING)
2:30PM COLLEGE BASKTBALL KANSAS AT UCLA
3:00PM PAID PROGRAM
3:30PM PAID PROGRAM
6:00PM BEACH PATROL
7:00PM COAST GUARD
7:30PM CBS EVENING
8:00PM NEWS
9:00PM ENTERAINMENT TONIGHT
10:00PM DR. QUINN, MEDICINE WOMAN
11:00PM EARLY EDITION
SUN 08
12:00AM WALKER, TEXAS RANGER
PROGRAM INFO
WHAT'S ON BY PREVUE INTERACTIVE....
TIME
CHANNEL
CATEGORY
SEARCH
SELECT DAY TO VIEW
S M T W T F S
1 2 3 4 5 6 7
8 9 10 11 12 13 14
15 16 17 18 19 20 21
SELECT TIME OF DAY
EARLY MORNING
MID-DAY AFTERNOON
PRIME TIME LATE NITE

FIG. 12

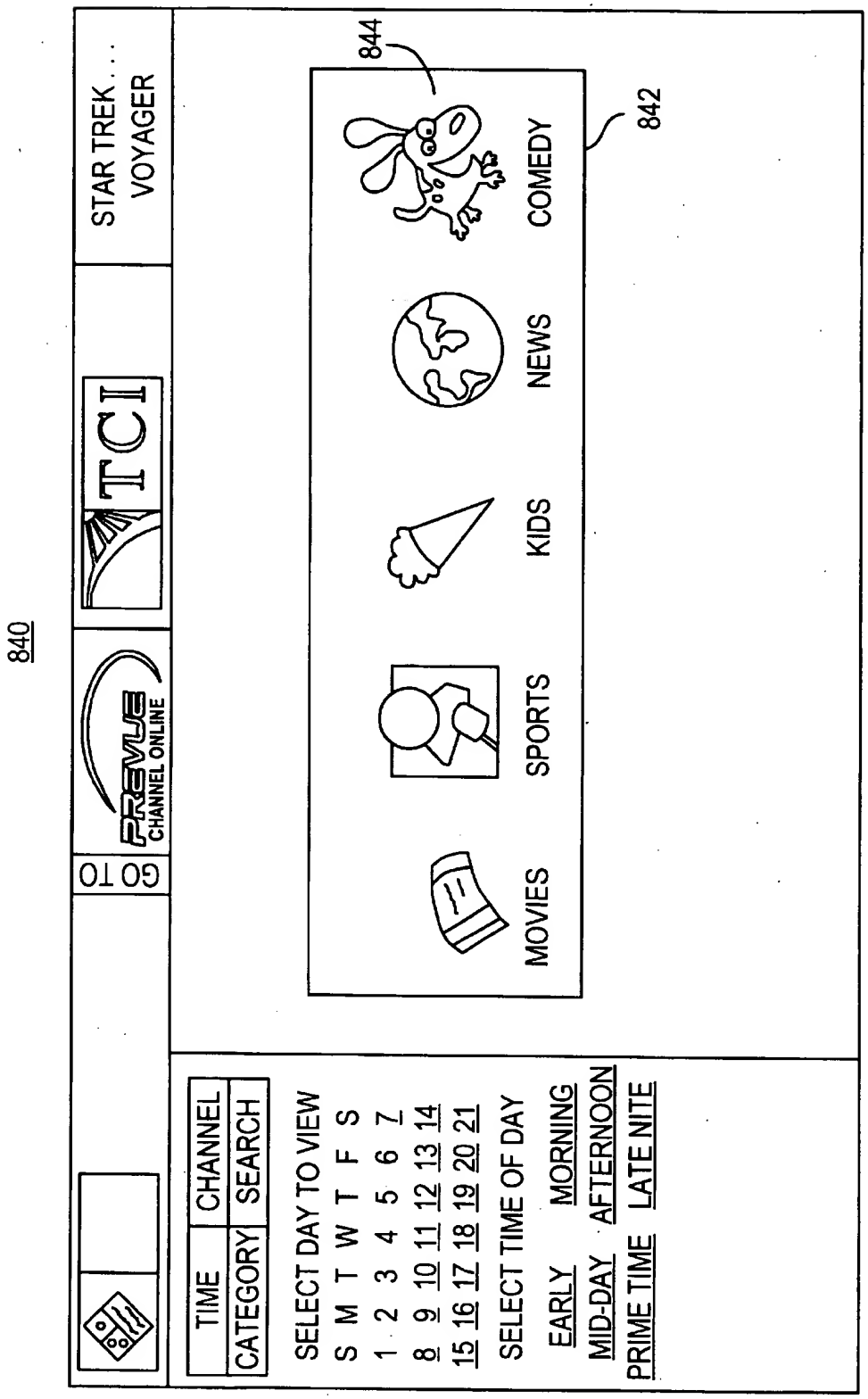

840
GO TO
PREVUE CHANNEL ONLINE
TCI
STAR TREK . . . VOYAGER
844
842
MOVIES
SPORTS
KIDS
NEWS
COMEDY
TIME
CHANNEL
CATEGORY
SEARCH
SELECT DAY TO VIEW
S M T W T F S
1 2 3 4 5 6 7
8 9 10 11 12 13 14
15 16 17 18 19 20 21
SELECT TIME OF DAY
EARLY MORNING
MID-DAY AFTERNOON
PRIME TIME LATE NITE

FIG. 13

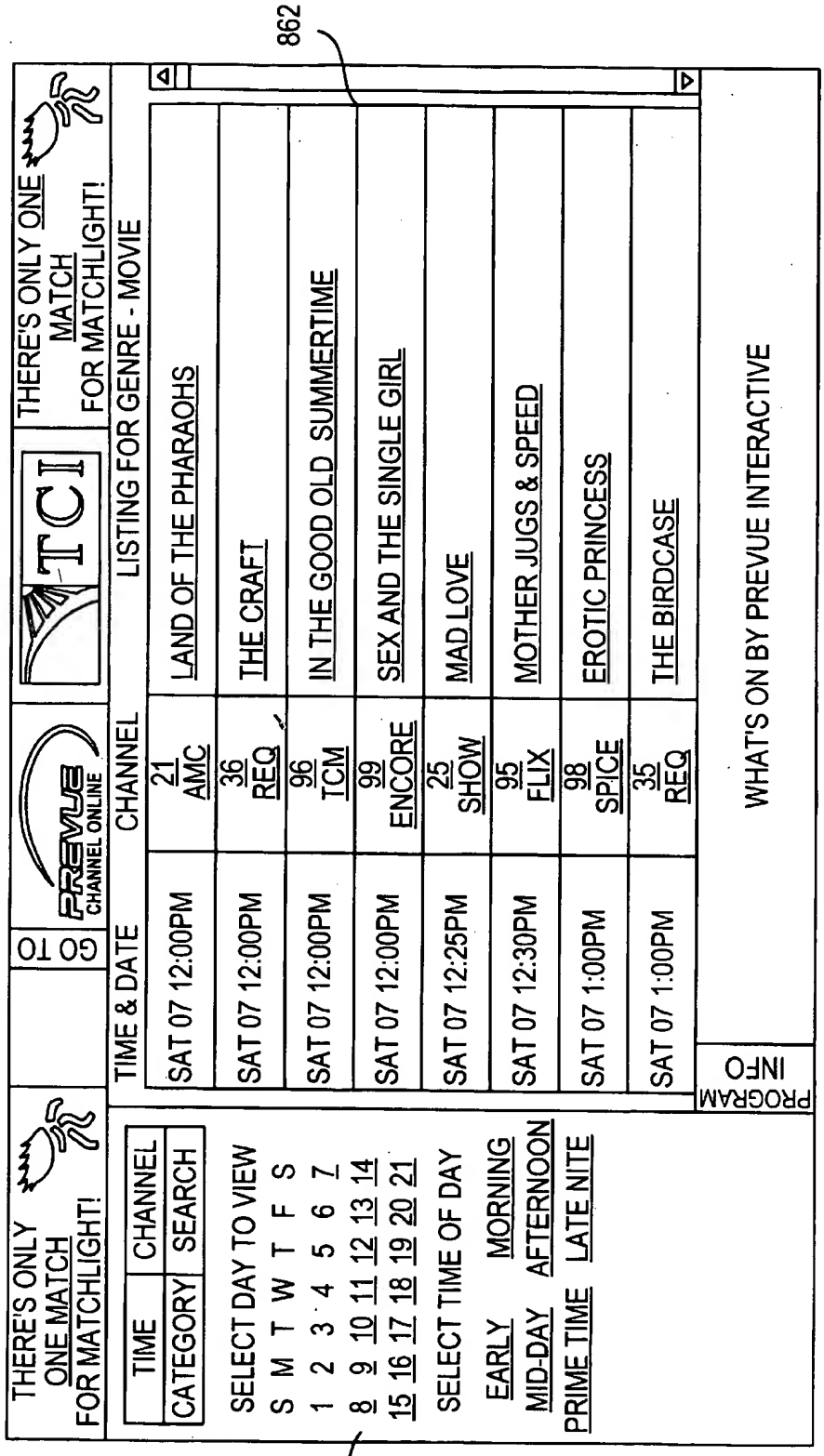

860
862
866
THERE'S ONLY ONE MATCH FOR MATCHLIGHT!
GO TO
PREVUE CHANNEL ONLINE
TCI
THERE'S ONLY ONE MATCH FOR MATCHLIGHT!
TIME
CHANNEL
CATEGORY
SEARCH
SELECT DAY TO VIEW
S M T W T F S
1 2 3 4 5 6 7
8 9 10 11 12 13 14
15 16 17 18 19 20 21
SELECT TIME OF DAY
EARLY MORNING
MID-DAY AFTERNOON
PRIME TIME LATE NITE
TIME & DATE
CHANNEL
LISTING FOR GENRE - MOVIE
SAT 07 12:00PM 21 AMC LAND OF THE PHARAOHS
SAT 07 12:00PM 36 REQ THE CRAFT
SAT 07 12:00PM 96 TCM IN THE GOOD OLD SUMMERTIME
SAT 07 12:00PM 99 ENCORE SEX AND THE SINGLE GIRL
SAT 07 12:25PM 25 SHOW MAD LOVE
SAT 07 12:30PM 95 FLIX MOTHER JUGS & SPEED
SAT 07 1:00PM 98 SPICE EROTIC PRINCESS
SAT 07 1:00PM 35 REQ THE BIRDCASE
PROGRAM INFO
WHAT'S ON BY PREVUE INTERACTIVE

FIG. 14

INTERNET TELEVISION PROGRAM GUIDE SYSTEM WITH EMBEDDED REAL-TIME DATA

BACKGROUND OF THE INVENTION

This invention relates to the Internet, and more particularly, to techniques for providing television program guide information and services with embedded real-time data to a user over the Internet.

A large number of television channels are available over cable television systems and satellite television systems. Television viewers have traditionally had to consult pre-printed television program listings to determine which programs were scheduled to be broadcast on a particular day. More recently, television-based program guides have been developed that allow television viewers to view television program listings directly on their television sets.

For example, the Prevue® channel is a scrolling television program listings service that a cable system operator may make available to subscribers over a dedicated cable channel. Viewers can tune to the appropriate television channel to view program listings for television programs that are currently being broadcast and are scheduled to be broadcast in the next few hours. Although the Prevue® channel is a valuable service, the viewer is somewhat constrained by the passive nature of the service. For example, the viewer cannot view television listings for the next day or week.

As a result, more advanced television program guide services have been developed that allow a service provider to deliver television program listings data to a user's set-top box. The program listings data is typically delivered over the television cable system infrastructure (e.g., on a given television channel during the vertical blanking interval or over an out-of-band channel). Software in the set-top box allows the user to display the television program listings on the user's television set.

These program guide services allow the user to manipulate the television listings by searching or sorting through the listings using criteria such as genre, channel, and broadcast time. An example of such an interactive television program guide is the Prevue Express® guide of Prevue Networks, Inc. of Tulsa, Okla., the assignee of the present invention.

Although passive scrolling guides and interactive set-top box guides are useful sources of television program guide information, millions of users with personal computers were not able to obtain on-line television program listings using such systems. In addition, users were not generally able to view selected promotional video clips, interview segments, audio clips, or other multimedia material related to a given television program.

In order to meet these demands, television program guide systems that provide television program listings from a web server to a user's multimedia system over an Internet communication link were developed. For example, the Prevue Online® service available on the Internet at http://www.prevue.com from Prevue Networks, Inc. of Tulsa, Okla., the assignee of the present invention, provides television program listings over an Internet communication link. Users can gain access to the Prevue Online® web site on the Internet through any Internet service provider (such as through the WorldNet™ service available from American Telephone and Telegraph Company of New York, N.Y.). Once at the home page of the Prevue Online® service, the user may access information using commonly available web browser software.

Although Internet television program guide systems that provide television program listings from a web server to a user's multimedia system over an Internet communications link are useful sources of television program guide information, the user is somewhat constrained by the static nature of the information available. The user is able to determine from the television program listings that an event (e.g., a sporting event or other game) is in progress, but the user cannot view the current status of the event. For example, the user cannot receive real-time information about whether a game is suspended, whether the game is in overtime, the current score, etc.

It is therefore an object of the present invention to provide a television program guide system that provides television program listings with embedded real-time data from a web server to a user's multimedia system over an Internet communications link.

It is a further object of the present invention to provide a television program guide system that allows users to click on text or still images to view additional information related to the embedded real-time data.

SUMMARY OF THE INVENTION

These and other objects of the invention are accomplished in accordance with the principles of the present invention by providing an Internet television program guide system, that displays television program listings with embedded real-time data. A computer system having a media library and a data server is used to provide multimedia clips and related television program guide data for the system. The multimedia material and related television program guide data may be provided to a web server for redistribution to a user's personal computer or other suitable multimedia system.

Dynamic information regarding events in progress that are being televised may be provided to the web server from one or more information processing facilities. Such dynamic information may be linked with related static information in the media library and/or the data server to provide the user with additional information pertaining to the events in progress. The web server provides the static and dynamic information to the user's multimedia system via an Internet communications link.

The user's multimedia system has a processing unit for receiving and processing information from the Internet communications link. The processing unit may be based on a personal computer running a standard web browser with plug-ins. The multimedia system may also have the capability to receive television signals.

Television program listings with embedded real-time data are preferably provided to the user's multimedia system in the form of web pages. Because such an arrangement allows the use of the widely-adopted hypertext transfer protocol (http), a user with a personal computer can access information using commonly available web browser software. Because television program listings with embedded real-time data are distributed over the Internet, the user can access this information at remote locations. For example, the user can access the television program listings with embedded real-time data while traveling by car (e.g., using a cellular modem), from a hotel room or business meeting, from a personal computer at work, or in any suitable environment in which there is a link to the Internet. The user can receive this dynamic information from locations not covered by cable or satellite systems or locations where the user may not have access to cable or satellite service.

Because the Internet television program guide system with embedded real-time data may be provided using a web

site having a number of linked web pages, supplemental information related to the embedded real-time data can be provided to the user. Such supplemental information might include statistics pertaining to the teams and/or specific athletes that are participating in a game. The supplemental information may be provided using any suitable media format such as animation, full motion video, sound, still images, or text.

Further features of the invention, its nature and various advantages will be more apparent from the accompanying drawings and the following detailed description of the preferred embodiments.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a schematic diagram showing how a media library, data server, and data inputs from information processing facilities may be interconnected with a web server and various multimedia systems in accordance with the present invention.

FIG. **2** is an illustrative display containing a home page for an Internet television program guide system with embedded real-time data in accordance with the present invention.

FIG. **3** is an illustrative display containing a map-based menu for identifying a geographical area of interest in accordance with the present invention.

FIG. **4** is an illustrative display containing a map-based menu for a smaller geographical area than the area shown in FIG. **3**.

FIG. **5** is an illustrative display of a menu offering access to various types of program listings as alternatives to access to local program listings in accordance with the present invention.

FIG. **6** is an illustrative display presenting various program guide options to the user in accordance with the present invention.

FIG. **7** is an illustrative display containing weather information.

FIG. **8** is an illustrative display presenting various program guide options related to the way in which television program guide listings are organized on the user's display screen in accordance with the present invention.

FIG. **9** is an illustrative display containing television program guide listings organized by time in accordance with the present invention.

FIG. **10** is an illustrative display of information on an event selected by the user and related options in accordance with the present invention.

FIG. **11** is an illustrative display presenting a menu of channel selections in accordance with the present invention.

FIG. **12** is an illustrative display containing television program guide listings organized by channel in accordance with the present invention.

FIG. **13** is an illustrative display containing icons representing category options in accordance with the present invention.

FIG. **14** is an illustrative display containing television program guide listings organized by category in accordance with the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

An Internet television program guide system **8** for providing television program listings with embedded real-time data in accordance with the present invention is shown in FIG. **1**. Television program information is stored in media library **12** and data server **14** of main facility **10**. Media library **12** preferably contains an array of compact disc read only memory (CD-ROM) disks, digital video disks (DVDs), or other suitable media for storing multimedia content. Media library **12** contains television program clips and related interviews and reviews. Media library **12** may also contain video clips and related interviews and reviews from previously televised sporting events. The television program information stored in media library **12** is primarily video information.

Data server **14** maintains various databases of television program information. For example, data server **14** maintains a television program listings database. Data server **14** may also have a remote media database containing descriptions of the videos in media library **12**. In addition, data server **14** may have a database containing statistical information on various sports teams (e.g., National Football League teams, National Hockey League teams, National Basketball Association teams, etc.), as well as information on the players of each team. Data server **14** may have a cable system operator database containing channel lineups, information on the time zone of the operator, weather data for the operator's region, data on the zip codes in the cable system operator's area, etc. Other databases may be supported by data server **14** if desired. The television program information in data server **14** is primarily in non-video formats.

Media library **12** and data server **14** may be interconnected with transmission server **16** via internal network **18**. In addition to information received from media library **12** and data server **14**, transmission server **16** receives information from one or more real-time data processing facilities **20**, **22**, **24** and **26** via network links **30** and **32** and/or via satellite links **34** and **36**. Media library **12**, data server **14**, network **18**, and transmission server **16** including its links make up computer system **100**. Television program information may be stored on data server **14** in a relational database format and may be stored on transmission server **16** in an object-oriented database format. A building process implemented in the C++ programming language can be used to periodically build a temporary data set of television program information (e.g., a seven-day to one-month data set) for storage on transmission server **16**.

Transmission server **16** receives dynamic or real-time data to be displayed with a corresponding program listing for an event in progress that is being televised or with any other program listing to which the real-time data is of relevance. Such real-time data may include weather data, sports scores, video stills, video and audio clips, interview segments, etc. The real-time data received by transmission server **16** from processing facilities **50** is embedded within the television program listing of the corresponding televised event in progress or within any other program listing to which the real-time data is of relevance. For example, if transmission server **16** receives real-time data from information processing facility **22** such as the score in a basketball game being played between the New York Knicks and the Chicago Bulls that is being televised on the MSG channel, the current score of the game is embedded within the row of text of the corresponding television program listing which indicates that the New York Knicks v. Chicago Bulls game is being televised on MSG from 8:00 P.M. EST to 11:30 P.M. EST. Similarly, real-time data pertaining to the weather may be embedded within the program listing of an outdoor event such as a marathon, which may be in progress and being televised or which may be scheduled to be televised in the near future.

Television program information including television program listings information and related real-time data may be transferred from transmission server **16** to web server **55** via communications line **52**. Communications line **52** may be part of an internal network or may be a standard dedicated communications line. Data may also be transferred from transmission server **16** to web server **55** via satellite. Web server **55** can be connected to the Internet **60** via communications link **56**. Communications link **56** is preferably a telephone network link or other suitable Internet communications path.

If transmission server **16** and web server **55** are separate devices, as shown in FIG. **1**, transmission server **16** can be used as a common data processing facility for other applications which use the type of data stored on transmission server **16**. If desired, the functions of transmission server **16** and web server **55** can be integrated in a single machine. Similarly data server **14** and transmission server **16** can be integrated in a single machine with separate logical functionalities.

Web server **55** uses a standard protocol such as the TCP/IP (Transmission Control Protocol/Internet Protocol) and hypertext transfer protocol to make television program information available over the Internet **60** to users at multimedia systems **70**, **72**, **74**, and **76** via communication links **62**, **64**, **66**, and **68**, respectively. Communication links **62**, **64**, **66**, and **68** are Internet links formed from telephone lines, radio-frequency (RF) links, cable modem links, satellite dish links, combinations of links such as these, or any other suitable Internet connection paths.

Multimedia systems **70**, **72**, and **74** may be standard modern laptops, notebooks, or desktop computers with multimedia and Internet capabilities. Multimedia system **76** uses an integrated personal computer and television **78**, such as the Gateway 2000 Destination® PC-TV hybrid available from Gateway 2000 Inc. of North Sioux City, S. Dak. Television signals are provided at input **80**. Internet access is provided via Internet communications link **68**.

During operation of system **100**, certain data processing functions, such as user-initiated searches and sorts, may be performed on web server **55**. If desired, such functions can be performed on a suitable data processing component in one of multimedia systems **70**, **72**, **74**, or **76**.

Regardless of the specific configuration of the multimedia systems used in the system of FIG. **1**, the user of such a multimedia system has the capability to access an interactive Internet television program guide having embedded real-time data within its program listings using web server **55**. The features of the program guide are available using the personal computer functions of the user's multimedia system. If it is desired to use certain program guide features that rely upon the control of a tuner or recording unit, the multimedia system should also have the ability to tune to a desired television program from among the various television programs provided at input **80** and have the ability to record that program automatically, under the control of commands from a built-in processing unit.

The system hardware shown in FIG. **1** is illustrative and other suitable hardware arrangements may be used if desired. Regardless of the particular hardware system that is used, however, the present invention preferably provides the television program guide to users over the Internet in the form of multiple web pages that use the standard hypertext transfer protocol (http). In the system of FIG. **1**, web pages and associated program guide features (such as searching, etc.) are provided using web server **55**.

Because the television program guide is provided using web pages, the features of the program guide may be accessed using standard web browsers operating on the appropriate processing unit in the user's multimedia system. For example, in multimedia system **72** of FIG. **1**, a web browser may be implemented using the computer's built-in processing unit. Suitable web browsers include the Internet Explorer® web browser of Microsoft Corporation of Redmond, Wash. and the Netscape Navigator® web browser of Netscape Communications Corporation of Mountain View, Calif. Such web browsers support the viewing of various types of multimedia content, such as video stills (JPEG or GIF files) and video and audio clips (AVI, MOV, and MPG files). If desired, certain of these multimedia support functions may be provided as web browser plug-ins (i.e., special software modules designed to enhance the features of a web browser application). A suitable video player plug-in for MOV files is the Quicktime® application of Apple Computer, Inc. of Cupertino, Calif. AVI and MPG (or MPEG—Motion Picture Expert Group) files may be played using the ActiveMovie® application of Microsoft Corporation.

An illustrative welcome page **200** for the television program guide of the present invention is shown in FIG. **2**. Web browser function keys **226** help the user to navigate through web pages of material such as welcome page **200**. Users may also navigate by clicking on an image or an element of highlighted text with cursor **242**, which may be controlled by a pointing device such as a mouse or trackball. Other arrangements for selecting links may be used if desired. Web browser function keys **226** include back and forward keys that allow the user to navigate backward and forward along a browsing trail. Web browser function keys **226** are not shown in the other drawings, but are shown in FIG. **2** to illustrate the types of function keys that are available with a standard web browser.

Welcome page **200** may contain identifying logos **228**. Identifying logos **228** allow a user to quickly associate a service provider with the Internet television program guide service. If desired, welcome page **200** can contain summary instructions **230** that inform the user of some of the features available with the guide. The summary instructions **230** may, for example, inform the user that the guide provides embedded real-time data within the program listings of televised events in progress. Other web pages (not shown) may contain links that point to welcome page **200**.

An important aspect of the Internet television program guide provided by system **8** (FIG. **1**) relates to providing on-line television program listings that contain real-time data on televised events in progress. The user may be presented with a number of choices regarding the type of on-line program listings that are available. In addition, the user may be provided with an opportunity to access supplemental real-time information on the events in progress based on the program listings the user displays. For example, the user may be presented with the opportunity to select between go local option **236**, go national option **238**, and go satellite option **240**. After the user has selected one of these options, the user may access dynamic information pertaining to events in progress which are being televised and thus appear in the program listings for the option chosen by the user.

If the user desires to select go local option **236**, the user may be prompted to enter a zip code for the local area of interest in box **244**. If service is available, the program guide system presents the user with information for an appropriate local system operator's television lineup based on the zip

code information. If the user is unaware of the zip code of the region where the event in progress is being televised, the user can select a local area by entering information such as a cable system operator's name, the name of a city, international country and city information, etc. Another way in which the user may select a local service area of interest is using a map-based graphical user interface. As shown in FIG. **3**, the user is presented with United States map **302**. The user selects a state of interest using cursor **304**. If necessary, additional maps containing greater levels of detail are provided, each allowing the user to make further geographical selections. Ultimately, the user is presented with a local map (e.g., a map that allows the user to select from several available cable system operators). In map **306** of FIG. **4**, the user can select between three available cable system operator regions: region **1**, region **2**, and region **3**.

If no local service is available, the user may be provided with pick again page **320** as shown in FIG. **5**. Pick again page **320** provides the user with another opportunity to select go national option **238** or go satellite option **240**. In addition, pick again page **320** provides the user with select a city option **322**, which is associated with a less restrictive set of program information than go local option **236** (FIG. **2**). With select a city option **322**, the user may select a desired city where the event in progress is being televised using arrow key **324** (or alternatively, could type the name of the city directly into box **326**). After entering the desired city, the city information is submitted to the system by clicking on submit button **330**. Because select a city option **322** is less localized than go local option **236**, choosing select a city option **322** makes it more likely that there will be a set of program listings available for the user.

If service is available for the user in either the city selected in city option **322** or the localized geographic area selected in go local option **236**, the user is presented with local cable site page **350** of FIG. **6**, which is customized to reflect the local geographic area or city selected by the user. Local cable site page **350** may contain a welcome message **352** that is customized to reflect the name of the local cable system operator.

A number of options **354** may be presented as hypertext links to associated web pages. An image **356** is displayed that changes as the user places cursor **242** (FIG. **2**) on top of each option **354**. For example, the image **356** of FIG. **6** is presented when the user positions cursor **242** over program guide option **360**. Different images are displayed as cursor **242** passes over each option **354**. The images **356** to be displayed may be stored as bitmap images. This technique of presenting context-sensitive images to illustrate the current position of the cursor over hypertext link options is preferably used throughout the Internet television program guide service.

Various web pages may be displayed depending on which option **354** is selected by the user. For example, an option **354** that is available on local cable site page **350** (FIG. **6**) is local weather option **364**. Selecting local weather option **364** takes the user to local weather page **400** (FIG. **7**). If desired, a map-based menu (such as shown in FIGS. **3** and **4**) or other user input arrangement can be used to provide the user with the opportunity to select additional cities for which weather information is desired.

Program guide option **360** allows the user to access television program listings that can be organized by time, channel, and category and can be searched. Selecting program guide option **360** takes the user to program guide menu page **500** (FIG. **8**). The user may reach program guide menu page **500** (FIG. **8**) from go national option **238** (FIGS. **2** and **5**) or go satellite option **240** (FIGS. **2** and **5**). If the user selected go local option **236** (FIG. **2**), the user may reach program guide menu page **500** (FIG. **8**) by selecting program guide option **360** on local cable site page **350** (FIG. **6**). The user may also reach program guide menu page **500** (FIG. **8**) via select a city option **322** (FIG. **5**). Each of these paths to program guide menu page **500** requires that slightly different user selections be made.

Go local option **236** (FIG. **2**) requires that a user specify a particular local region (or cable system operator) of interest to reach local cable site page **350** (FIG. **6**). To reach program guide menu page **500** (FIG. **8**) from local cable site page **350** (FIG. **6**), the user selects program guide option **360**.

Go national option **238** (FIGS. **2** and **5**) requires that a user select a desired time zone (e.g., eastern, central, mountain, or pacific). To reach program guide menu page **500** from welcome page **200** (FIG. **2**) or pick again page **320** (FIG. **5**), the user selects program guide option **284**.

Go satellite option **240** (FIGS. **2** and **5**) requires that the user select a desired satellite provider **286**. To reach program guide menu page **500** from welcome page **200** (FIG. **2**) or pick again page **320** (FIG. **5**), the user selects program guide option **288**.

Select a city option **322** (FIG. **5**) requires that the user enter information specifying a particular city. The user reaches program guide menu page **500** from local cable site page **350** (FIG. **6**) after the user submits the city information by clicking on submit button **330**.

Regardless of which option is used to reach program guide menu page **500** (FIG. **8**), information is preferably retained by the system that indicates which selections have been made by the user. Retaining this information allows subsequently displayed program listings and other information to be automatically customized to reflect the user's selections.

As shown in FIG. **8**, program guide menu page **500** may be constructed from two smaller web pages: top web page **502** and a bottom web page **504**. Top web page **502** contains graphics and text-based options **508** that are common to many different system operators. Bottom web page **504** may contain system specific promotional materials, such as pay-per-view video promotion **506**. Dividing program guide menu page **500** in this way allows system resources to be used more efficiently than would otherwise be possible, because the common material in top web page **502** can be used for more than one local cable system.

Options **508** allow the user to choose how to display various program listings for the user's preselected region of interest (national, satellite, or local). Typical options **508** include by time option **510**, by channel option **512**, by category option **514**, and search option **516**. The user may, based upon category options **514**, locate an event by choosing the corresponding category. If the event sought by the user is a game in progress which is being televised, then the user may select sports as the category by which program listings are to be displayed. The user may thus be able to locate the sporting event of interest along with its real-time embedded data and any associated supplemental information.

If by time option **510** is selected, the user is presented with by time page **600**, as shown in FIG. **9**. By time page **600** contains program listings **620** that are organized in channel order from top to bottom and by broadcast time from left to right. In by time page **600**, the programs in program listings

620 may be listed beginning with programs that are currently being broadcast. For example, if the current time is between 1:30 P.M. and 2:00 P.M., program listings 620 may begin with programs that start at 1:30 P.M. Programs in program listings 620 that are reflective of televised events in progress provide dynamic information about those events by way of embedded real-time data 650. Embedded real-time data 650 may be displayed adjacent to a program title, as shown in FIG. 9. Program listings 620 can be identified as events in progress by stating that the broadcast is "LIVE" and/or by distinguishing the appearance of live program listings from those that are prerecorded by virtue of color, text, etc.

If the user is aware that a televised event is in progress, the user may use by time option 510 or other suitable display option to display the desired program listing. The user can visually locate the program listing of interest and the corresponding real-time data within the listing because of its distinguishing appearance.

The user can also select the search option 516 and can search for program listings by title, channel, rating, etc. The user may search for televised sporting events in progress by selecting a channel dedicated to sports. Similarly, if the user knows the title of a sporting event and wishes to view the current score or other information in real time, the event and its corresponding embedded real-time data can be located by conducting a search by title.

Cursors 622 and 624 (FIG. 9) are used to navigate to earlier or later time periods, respectively. Web browser cursors 626 and 628 allow the user to scroll through the program listings. The user may also navigate the program listings with time navigation buttons 630. For example, if the user would like to view program listings that begin in the morning, the user clicks on the morning navigation button 630. If the user would like to view program listings for programs currently being broadcast, the user may click on the current navigation button 630. Program listings for different days in the month may be viewed by selecting the appropriate day from calendar buttons 632. Similarly, information regarding events televised live in the past can be viewed by the user by selecting the day of the event from the calendar. The program listing displayed in that event would reflect the final score, if the event was a game, in addition to other information that was made available to the user at the time the event was being televised.

The user can choose between various available view options by selecting the appropriate time, channel, category, or search button from among view buttons 634. View buttons 634 take the user to the same web pages that are presented when the corresponding options 508 of FIG. 8 are selected. For example, by channel option 512 and channel view button 634 are both linked to by channel page 760 (FIG. 11).

Another component of by time page 600 and various other web pages provided by the present system is program information box 636. Program information box 636 provides supplemental information on the selected television program listing. The contents of program information box 636 change as different program titles are selected from program listings 620. For example, the user has clicked on the entry "Knicks v. Bulls" in program listings 620 of FIG. 9. As a result, the contents of program information box 636 reflects this selection. If the program title selected by the user corresponds to an event in progress which is being televised (e.g., a basketball game), then program information box 636 may reflect static as well as dynamic information about the event. In the above example, program information box 636 might contain static information such as the program title (e.g., Knicks v. Bulls) or the running time of the program (e.g., 2:45). Program information box 636 might also contain real-time data such as the current score (e.g., Knicks: 43; Bulls: 42, half time . . .), highlights of the game (e.g., Knicks first lead in the game, shot putting Knicks ahead made by Patrick Ewing at half time buzzer . . .). Program information box 636 may be customized to reflect additional information in a different sequence as well.

If the user selects a program that is not a televised event in progress, the program information box 636 provides solely static information pertaining to the selection made by the user. For example, if the user selects a movie, then the program information box 636 typically contains the program title (e.g., Primal Fear), the running time of the program (e.g., 2:09), a brief description of the program (e.g., A hot shot . . .), and a description of the program type or genre (e.g., drama movie). The program description may contain information on the actors in the program, the director, etc. Program information box 636 typically provides a rating of the program, such as a star rating (e.g., three stars) or the Motion Picture Association of America (MPAA) rating for movies or the television rating for television programs.

If the user desires to view additional supplemental information relating to the selected program, the user may click on closer look icon 638 (or alternatively, on any portion of box 636), which takes the user to program information page 700 (FIG. 10). Program information page 700 may provide both static and dynamic information relating to the selected program listing. If the program listing selected by the user is for a televised game in progress, the information displayed on program information page 700 could reflect the statistics 702 of the teams and/or individuals that are playing. In addition, additional information could also include video stills, video and/or audio clips of key shots made or missed by players 720, interview segments 725, etc. A user can also click on a graphic or text link to the web site of a network or other source of information.

By channel page 760 of FIG. 11 is presented when the user selects by channel option 512 from program guide menu page 500 (FIG. 8) or when the user clicks on a channel view button, such as channel view button 634 of by time page 600 (FIG. 9). By channel page 760 contains channel list 762. Channel list 762 may be arranged in channel number order and may contain associated icons 764 for certain channels. A user can click on each individual channel 766 in channel list 762 to obtain a list of program information based on the selected channel. For example, the user may select a sports channel to view dynamic information pertaining to a game in progress being televised on that particular channel.

When a channel 766 is selected, the user is presented with channel program list page 800, as shown in FIG. 12. The selected channel in the example of FIG. 12 is channel 2. In channel program list page 800, program listings 802 for the selected channel may be arranged in time order, beginning with the current time. If programs in program listings 802 extend into the next day, the programs may be separated by date separation bar 804. Embedded real-time data may appear with the program name in program listings 802, as real-time weather data 807 appears next to the title "College Football Army vs. Navy" in FIG. 12. Title bar 806 contains information identifying the currently selected channel.

By category page 840 of FIG. 13 is presented when the user selects by category option 514 from program guide menu page 500 (FIG. 8) or when the user clicks on a

category view button, such as category view button **634** of by time page **600** (FIG. **9**). By category page **840** contains category list **842**, which may be presented in the form of category icons **844**. A user can click an individual category icon **844** in category list **842** to obtain a list of program information based on the selected category. For example, the user may choose sports as a category to view a list of sports programs.

When a category is selected, the user is presented with category program list page **860**, as shown in FIG. **14**. In category program list page **860**, program listings **862** may be arranged in time and channel order, beginning with the current time and date. Although the category program list page **860** depicted in FIG. **14** is based upon the selection of the movies category, a similarly arranged sports category program list would have been displayed had the user selected the sports category. Moreover, if the sports event was then in progress and being televised, embedded real-time data would appear with the program name in program listings **862**. Program listings **862** contain the channel information for each program adjacent to the program title. If a user wishes to view program information for a given channel, the user may click on one of the displayed channels. The user is then presented with a program list that is restricted to programs appearing on the selected channel.

If desired, the program list that is displayed in category program list page **860** may be limited to programs appearing in the next 24 hour period. The user may view information for later days by clicking on the appropriate day in calendar buttons **866**.

The foregoing is merely illustrative of the principles of this invention and various modifications can be made by those skilled in the art without departing from the scope and spirit of the invention.

What is claimed is:

1. An Internet television program guide system for providing television program listings with embedded real-time data to a user at a multimedia system over an Internet communications link, comprising:

a computer system for providing television program listings with embedded real-time data, said real-time data corresponding to events being televised live; and

a web server for receiving the television program listings with embedded real-time data from the computer system and for providing the television program listings with embedded real-time data corresponding to events being televised live to the multimedia system over the Internet communications link when the user accesses the television program listings with embedded real-time data using the multimedia system.

2. The system defined in claim **1** wherein the computer system comprises a media library containing video clips.

3. The system defined in claim **1** wherein the computer system comprises a data server on which at least part of the television program listings are stored.

4. The system defined in claim **1** wherein the computer system comprises means for receiving the real-time data from a real-time data processing facility.

5. The system defined in claim **4** wherein the real-time data processing facility supplies real-time sports scores.

6. The system defined in claim **4** wherein the real-time data processing facility supplies real-time weather data.

7. The system defined in claim **1** wherein the computer system comprises means for providing real-time data containing textual information.

8. The system defined in claim **1** wherein the computer system comprises means for providing real-time data containing video images.

9. The system defined in claim **1** wherein the computer system comprises means for providing real-time data containing video clips.

10. The system defined in claim **1** wherein the computer system comprises means for providing real-time data containing audio clips.

11. The system defined in claim **1** wherein the computer system comprises means for providing real-time data containing combinations of textual information, video clips, video images, and audio clips.

12. The system defined in claim **1** further comprising means for accessing the embedded real-time data by displaying corresponding television program listings.

13. The system defined in claim **1** further comprising means for providing a go national option which the user selects to receive real-time data embedded within national television program listings.

14. The system defined in claim **1** further comprising means for providing a go satellite option which the user selects to receive real-time data embedded within satellite television program listings.

15. The system defined in claim **1** further comprising means for providing a go local option which the user selects to receive real-time data embedded within local television program listings.

16. The system defined in claim **15** further comprising means for selecting a locality for the local television program listings.

17. The system defined in claim **16** wherein the means for selecting a locality comprises means for accepting a zip code from which the locality is determined.

18. The system defined in claim **16** wherein the means for selecting a locality comprises means for selecting a local region from a map.

19. The system defined in claim **15** further comprising means for presenting a pick again web page when television program listings are not available for the selected locality.

20. The system defined in claim **1** further comprising:

means for providing a program guide option; and

means for presenting a program guide menu web page when the user selects the program guide option.

21. The system defined in claim **1** further comprising means for providing a selectable option to arrange the television program listings by time.

22. The system defined in claim **1** further comprising means for providing a selectable option to arrange the television program listings by channel.

23. The system defined in claim **1** further comprising means for providing a selectable option to arrange the television program listings by category.

24. The system defined in claim **23** wherein one of the categories is sports.

25. The system defined in claim **1** further comprising means for searching the television program listings.

26. The system defined in claim **25** further comprising means for searching the television program listings by title.

27. The system defined in claim **25** further comprising means for searching the television program listings by category.

28. The system defined in claim **1** further comprising means for allowing a user to select a given one of the television program listings with embedded real-time data.

29. The system defined in claim **28** further comprising means for providing supplemental information on the selected television program listing with embedded real-time data.

30. The system defined in claim **29** wherein the supplemental information is real-time information on same display screen.

31. The system defined in claim 29 wherein the supplemental information is real-time and non-real-time information on a web page.

32. The system defined in claim 1 wherein the computer system further comprises means for providing multimedia material associated with a television program selected by the user to a web server.

33. The system defined in claim 32 wherein the means for providing multimedia material comprises means for providing interview video segments.

34. The system defined in claim 1 further comprising a satellite transmission link between the computer system and the web server.

35. The system defined in claim 1 wherein:

the Internet communications link comprises a telephone line; and

the web server provides web pages to the multimedia system over the telephone line.

36. A method for providing television program listings with embedded real-time data to a user at a multimedia system over an Internet communications link using an Internet television program guide system having a computer system and a web server, the method comprising the steps of:

providing television program listings with embedded real-time data with the computer system, said real-time data corresponding to events being televised live;

receiving the television program listings with embedded real-time data from the computer system with the web server; and

providing the television program listings with embedded real-time data corresponding to events being televised live to the multimedia system over the Internet communications link with the web server, so that the user can access the television program listings with embedded real-time data.

37. The method defined in claim 36 further comprising the step of receiving real-time data supplied by a real-time data processing facility with the web server.

38. The method defined in claim 37 further comprising the step of embedding the real-time data received from the real-time data processing facility within corresponding television program listings.

39. The method defined in claim 36 further comprising the step of providing multimedia material associated with the television program listings to the web server with the computer system.

40. The method defined in claim 36 wherein the step of providing real-time data further comprises the step of providing real-time data containing textual information to the web server with the computer system.

41. The method defined in claim 36 wherein the step of providing real-time data further comprises the step of providing real-time data containing video images to the web server with the computer system.

42. The method defined in claim 36 wherein the step of providing real-time data further comprises the step of providing real-time data containing video clips to the web server with the computer system.

43. The method defined in claim 36 wherein the step of providing real-time data further comprises the step of providing real-time data containing audio clips to the web server with the computer system.

44. The method defined in claim 36 wherein the step of providing real-time data further comprises the step of providing real-time data containing combinations of textual information, video clips, video images, and audio clips to the web server with the computer system.

45. The method defined in claim 36 further comprising the step of providing a go national option which the user selects to receive real-time data embedded within national television program listings.

46. The method defined in claim 36 further comprising the step of providing a go satellite option which the user selects to receive real-time data embedded within satellite television program listings.

47. The method defined in claim 36 further comprising the step of providing a go local option which the user selects to receive real-time data embedded within local television program listings.

48. The method defined in claim 47 further comprising the step of selecting a locality for the local television program listings.

49. The method defined in claim 48 wherein the step of selecting a locality comprises the step of accepting a zip code from which the locality is determined.

50. The method defined in claim 48 wherein the step of selecting a locality comprises the step of selecting a local region from a map.

51. The method defined in claim 48 further comprising the step of presenting a pick again web page when television program listings are not available for the selected locality.

52. The method defined in claim 36 further comprising the steps of:

providing a program guide option; and

presenting a program guide menu web page when the user selects the program guide option.

53. The method defined in claim 36 further comprising the step of providing a selectable option to arrange the television program listings by time.

54. The method defined in claim 36 further comprising the step of providing a selectable option to arrange the television program listings by channel.

55. The method defined in claim 36 further comprising the step of providing a selectable option to arrange the television program listings by category.

56. The method defined in claim 36 further comprising the step of searching the television program listings.

57. The method defined in claim 56 further comprising the step of searching the television program listings by title.

58. The method defined in claim 56 further comprising the step of searching the television program listings by category.

59. The method defined in claim 36 further comprising the step of allowing a user to select a given one of the television program listings with embedded real-time data.

60. The method defined in claim 59 further comprising the step of providing supplemental information on the selected television program listing with embedded real-time data.

61. The method defined in claim 60 further comprising the step of providing supplemental real-time information on same display screen.

62. The method defined in claim 60 further comprising the step of providing supplemental real-time and non-real-time information on a web page.

63. The method defined in claim 36 further comprising the step of providing the television program listings to the web server with a satellite transmission link between the computer system and the web server.

64. The method defined in claim 36 wherein the Internet communications link comprises a telephone line, the method further comprising the step of providing web pages to the multimedia system over the telephone line.

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UNITED STATES PATENT AND TRADEMARK OFFICE

CERTIFICATE OF CORRECTION

PATENT NO. : 6,268,849 B1
DATED : July 31, 2001
INVENTOR(S) : Franklin E. Boyer et al.

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Title page,
References Cited, OTHER PUBLICATIONS, change "Click TV" to -- ClickTV --;

Drawings,
FIG. 5, reference 326, change "ANNEAHEIM" to -- ANAHEIM --;
FIG. 7, under Current Conditions, change "HUMDIDITY" to -- HUMIDITY --;
FIG. 9, in listings (5 KTLA): change "SYLVESTOR" to -- SYLVESTER --;
FIG. 12, in listings (2:30PM): change "BASKTBALL" to -- BASKETBALL --;
FIG. 12, in listings (9:00PM): change "ENTERAINMENT" to -- ENTERTAINMENT --;
FIG. 14, in listings (1:00PM), change "BIRDCASE" to -- BIRDCAGE --.

Signed and Sealed this

Thirtieth Day of April, 2002

Attest:

Attesting Officer

JAMES E. ROGAN
Director of the United States Patent and Trademark Office